NOTICE BY THE PUBLISHING COMMITTEE.

The American Journal of Pharmacy has now reached its 27th volume. On an examination of the stock of the Journal, the Committee find that three of the volumes are wholly or partially out of print—viz. vols. 1 and 2 of the first series, and vol. 1 of the second series. All the remaining volumes, twenty-one in number, they can supply on demand. Believing that the work embodies a large amount of information, extremely valuable to Apothecaries, Druggists and Physicians —comprehending, in fact, a faithful record of the development of Pharmaceutical science and inventions during the period of its issue, now twenty-five years, both in Europe and America, the Committee consider that no Pharmaceutical library should be without it.

Besides the abstract and applied science embodied in this work, a large number of formulæ are contained in it, including many, which, though not officinal, are more or less valuable and in use.

As an inducement to Subscribers to complete their sets as far as possible, the Committee offer the back volumes to the 24th inclusive, at the reduced price of $1.50 each, nett.

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The Committee offer the publication price in money for the 4th number of the 1st volume, published January, 1830; for the complete 2d volume, commencing April 1830; and the complete 7th volume, commencing April, 1835.

CHARLES ELLIS, ALFRED B. TAYLOR, } Committee.
PROF. REDFIELD, EDWARD PARRISH, }

THE

AMERICAN JOURNAL OF PHARMACY.

MAY, 1856.

ON THE MEDICINAL VALUE OF THE CANTHARIS VITTATA AND MYLABRIS CICHORII, AS COMPARED WITH THE CANTHARIS VESICATORIA.

By William R. Warner, of Maryland.

(*An Inaugural Essay presented to the Philadelphia College of Pharmacy.*)

A peculiar neutral proximate principle, cantharidin ($C_{10}H_6O_4$) is found to reside in, and render valuable as a therapeutic agent, several species of coleopterous insects.

The blistering fly is of incalculable importance, and almost any article of the materia medica could be better dispensed with.

The Cantharis vesicatoria of the division Coleoptera Heteromerans, abundant in France, Spain, and other parts bordering on the Mediterranean Sea, is chiefly employed in Europe, and especially in America, as the vesicant; although the Mylabris of China and the Cantharis vittata, the most important of the American species, possess similar valuable properties dependant upon the same proximate principle.

They have not as yet been used to any great extent on this continent. Perhaps it has not been satisfactorily proven that they are equally efficacious with the C. vesicatoria.

To ascertain their comparative value with the latter, it occurred to me that the most accurate and satisfactory method would be to isolate and ascertain the relative percentage of cantharidin in each.

Having made many preliminary experiments, for the purpose of discovering the most eligible method to gain satisfactorily the object in view, and having procured a quantity of the C. vesicatoria and vittata of standard quality, and the Mylabris through the kindness of Prof. Procter, I proceeded in the following manner with the Cantharis vesicatoria.

1st. 500 grains placed in a retort with a due proportion of water, and subjected to heat carefully regulated, afforded a distillate, slightly opalescent, and having the peculiar odor of the fly in a marked degree. No further separation of the oil occurred.

The distillate was then agitated with ether, the ether then separated and allowed to evaporate spontaneously. A minute residue was obtained, colorless, possessing the strong odor common to the fly, and being exposed was readily dissipated.

2d. Allowing the substance to remain in the retort, it was then boiled repeatedly in successive portions of water until every thing soluble in that menstruum was extracted.

The residue was a brown pulverulent mass, totally devoid of vesicating properties, the virtues of the fly being totally exhausted by the aqueous menstruum.

3d. This residue yielded the green oil of cantharides when treated with sulphuric ether.

4th. The decoctions previously obtained were mixed and evaporated at a temperature not exceeding 212° to nearly a solid consistency.

To this extract was added alcohol U. S. P., intimately mixed, boiled, and strained quickly.

The undissolved residue, constituting the greater part of the matter extracted by water, was of a dark brown color, tenacious, insoluble in alcohol or ether, precipitated by subacetate of lead and alcohol, acquires a sweetish odor on exposure for a short time, and is found to possess no epispastic properties.

5th. The strained alcoholic solution was then evaporated, and yielded that principal associated with cantharidin usually known as the yellow matter of cantharides. It was deliquescent, acid to litmus, soluble in alcohol and water, and has the remarkable property, when in combination with the active principle in the fly, of rendering it soluble in water and alcohol, in which menstrua in its pure state it is totally insoluble.

6th. This principle was then subjected to a moderate heat, and carefully dried so as to admit of pulverisation. Then being reduced to an extreme degree of comminution, intimately mixed with about half its weight of very fine, pure and perfectly dry animal charcoal, and moistened throughout with ether, was

allowed to remain in a covered vessel for twenty-four hours; then transferred to a small displacing apparatus and two ounces of sulphuric ether allowed to percolate. The ethereal solution was colorless, and on evaporation the residue consisted of nearly pure cantharidin, having a slight tinge of yellow which was removed by treating it with alcohol and carefully drying. The amount of cantharidin thus obtained from

A. 500 gr. of the Cantharis vesicatoria was gr. 2.03

B. The amount of cantharidin obtained from the Cantharis vittata in a similar manner, was found to be gr. 1.99

C. The Mylabris cichorii treated likewise yielded gr. 2.13

From a want of time and opportunity no regard could be paid to the rest of the constituents of the two last specimens operated upon, and I much regret that consequently I cannot carry the more important of my investigations to the extent I desire. Preparatory to the above results, I prepared a small quantity of cerate from the several specimens, according to our U. S. P. I prepared then a small blister of each cerate and applied them to my arm, watching closely the result.

I observed that the cerate prepared from the Mylabris was first to cause rubefacience, and in a shorter space of time produced the most perfect blister.

There was hardly a perceptible difference between that produced by the C. ves. and C. vit.; they were not so full, nor were they so speedily produced as that by the Mylabris.

The above facts, the result of careful experiment, show conclusively that the Cantharis vittata is but in an inappreciable degree inferior to the C. vesicatoria.

The difference in amount of cantharidin which they contain scarcely exceeds two per ct., and this investigation will greatly tend to corroborate the numerous statements that have been made relative to the value of the C. vittata as a vesicant.

That C. vesicatoria, was first introduced and having been long used almost universally, and found to answer every purpose, is not therefore necessary evidence of its superior efficacy, nor is it any argument that it should be used in preference to our Cantharis, capable of accomplishing the same service and preferable in many respects.

The C. vittata usually inhabiting the potato vine from June until frost, in the Middle, Western, and Southern States, is there procurable in considerable quantities, and quite adequate, I think, to the demand of our market.

In an economical point of view it is worthy of notice. The C. vittata can be procured at a cost of about one third, and I venture to say not exceeding one half the imported article.

Then we have an indigenous vesicating fly, capable of replacing beyond a doubt the foreign article, as regards its therapeutic applications at least.

The Mylabris cichorii, the subject of the third investigation was found to contain in 500 gr. 2.13 gr. of cantharidin, being 5 per ct. more than the yield of the C. vesicatoria.

Thus it will be seen, according to these results, that the Mylabris is the most valuable and powerful variety of the vesicating flies known. It can be procured at a cost 20 per. ct. less than the Spanish fly.

The Mylabris cichorii is an insect of about eight to five lines in length, having long elytra of a yellow hue, marked transversely with three black streaks of irregular corresponding outlines, being one of the most beautiful of the beetle tribe of insects.

It is quite abundant in China, and probably in other parts of the East Indies.

Its properties have been long known to the Chinese who have employed it from time immemorial. It is quite probable that it is the same insect referred to by Pliny and Dioscorides, in their writings.

Of the numerous advantages of the process herein adopted for procuring cantharidin, it is hardly necessary for me to allude, as they are quite apparent. The green oil so difficult to remove in the usual process, is entirely avoided, as it is left in the residue after the fly is treated with water.

Cantharidin, as I obtained it, did not present the scaly micaceous appearance, but seemed to be in minute hexagonal elongated crystals, soluble in essential oils of cinnamon, sassafras, and cloves, the fixed oils, olive and almond, and probably most of other oils. Soluble in cold ether to the extent of one part to 341.4, and its solubility but slightly increased in boiling ether. In oil of turpentine of 312°, its boiling point, it is soluble in the

proportion of 1 to 63, and from which on cooling it is precipitated in fine acicular crystals.

A very nice and efficient cerate I have prepared by digesting ℥iv. Pulv. Canth. vittata in oil of turpentine for twenty hours, then transferring to a percolator, and pouring upon it boiling oil of turpentine until f.℥vi pass through. This percolate is then, by means of a water bath, evaporated to about one eighth, and to this is added Ceræ Albæ ℥iiiss, Adipis ℥vi; fused, intimately mixed, and continually agitated until cold, that a cerate of a homogeneous consistency may be obtained.

As a means of protecting cantharides from the mite, I have found none more efficient than oil of turpentine, or fragments of white turpentine placed amongst them.

From the extreme hygroscopic tendency of cantharides, it is highly important also, as a means of preservation, that they should especially, when in powder, be kept in close vessels to exclude moisture.

To neglect or ignorance of this important fact is to be attributed, in many cases, the too frequent deterioration and inferiority of the vesicating fly.

ON THE MUTUAL ACTION OF CHROMIC ACID AND THE VOLATILE OILS.

By John T. Plummer, M. D.

In the year 1848, while repeating some toxicological experiments for the detection of strychnia, I observed a phenomenon, of which I made a record at the time, but did not institute much inquiry into the cause of it.

I had mixed together in a glass capsule (not, as usual, sulphuric acid and strychnia, but) sulphuric acid and chromate of potassa; and, while slowly approximating a drop of a very weak solution of strychnia in alcohol, on the end of a glass rod, I thought I perceived a change in the color of the acid mixture nearest the drop, before the two came in contact. This discovery induced me to continue the drop suspended over the mixture some time longer, until I became convinced, from the extension of the discoloration, that I was not mistaken in my observation.

As the color produced was not red but *green*, I supposed it

was not strychnia but alcohol, or one of its constituents, which passed over from the drop to the acid mixture. In order to determine this point, I placed two shallow concave glasses side by side, but *half an inch* distant from each other; and into one I put some newly prepared mixture of the acid and chromate, and into the other alcohol. The alcohol maintained a quiet, well defined margin, but the edge of the acid liquid immediately began to flap, and commencing at the point nearest the alcohol, the whole mass of acid mixture gradually became green. The flapping of the margin of the acid is best seen under a magnifier.

My next object was to ascertain whether other volatile liquids would act in like manner as alcohol. Oil of peppermint was first substituted for the spirits. A violent effervescence began directly in the whole circumference of the oil, (but, on subsequent examination, I found the same thing took place independent of the acid mixture,) and the same discoloration followed as with the alcohol, until, as before, the whole body of the acid mixture became green. The surface of the acid liquid was one inch in diameter. While the change of color was going on in this case, motes could be seen, under the microscope, rapidly approaching the edge nearest the oil; and in an instant wheel about and retreat, as if shot back by electrical repulsion. This motion was perceived even at the most remote part of the acid mixture, as the discoloration proceeded backward from the oil. The oil became thicker and opaque while under the influence of the acid, but when the glass was removed from the vicinity of the acids, the oil recovered its transparency but not its proper fluidity; and finally a watery liquid separated from it, tasting like water impregnated with the oil.

The oils of lavender and sassafras behaved like alcohol as to the quietude of their margins; and, unlike the oil of peppermint, caused no flapping motion in the acid mixture, but they all produced discoloration.

From the results of a limited number of experiments, I was at first tempted to think that my acid mixture had distinguished the terebenes of Löwig from the oxygenous volatile oils, long before this author had classified the fifth group of his hydropolycarbyls into the terebene and non-terebene oils, but an extension of the experiments to the oils of lemon, orange and cu-

bebs, and to a number of oxygenous oils, did not tend to corroborate the impression.

The oil of lemon was very active, and so powerful as to cause the repulsion of comparatively large masses of undecomposed chromate of potassa in the acid mixture, at the distance of one inch or more.

The oil of orange (the genuineness of which, however, I had some reason to question) was also very energetic; and, in addition, I observed under a moderate magnifier, a phenomenon unnoticed in the cases of the other oils. It consisted in an inimitable crumpling of the acid liquid next the oil, in parallel lines at right angles with the margin of the oil; the whole outline presenting a double convexity, like the edge-view of a double convex lens. The beautiful crumplings came and went like the corruscations of the boreal aurora.

The repulsive power of the oil of cubebs was far less apparent than that of the oils just named, but the decomposing agency was very striking though slow in its action.

Oil of turpentine produced a moderate motion in the acid mixture, and finally darkened the color of it till it became almost black; but on diluting it the color became green.

The oils of origanum, of chenopodium and of gaultheria, (oxygenous oils,) occasioned more or less motion and discoloration in the acid mixture.

When the concave glasses containing the respective liquids were placed within a small fraction of an inch apart, with but a few drops of the liquid in them, and the chromate was in small blocks lying in the acid, a retreating action commenced in the acid mixture at the edge next the oil, by which the whole mass was driven along like water before wind. And what made it still more curious was that this action was not continuous, but intermittent; an interval of several seconds transpiring between the motions. While witnessing the rolling over of the blocks of chromate, all in one direction and simultaneously, with suitable respites, I could hardly forebear fancying the existence of a little army of invisible Lilliputians adjusting their shoulders to the tiny rocks, and heaving them onward with simultaneous efforts, at the proper signal.

Whatever the agency was, it is certain that the whole mass,

blocks of chromate and all, was driven to a remote part of the glass; perhaps beyond the reach of further electrical action.

These experiments look very much like proving that chemical attraction is sometimes exerted at *sensible* distances, and *very* sensible distances. But, one of the fluids being volatile, its particles may be brought within the attractive action of the sulphuric acid by the well known affinity of that acid for atmospheric vapor causing currents; and in the case of alcohol the direct affinity of the acid for that substance accounts for its greater activity. This view is corroborated, as glycerine, a non-volatile oxygenous compound, produced no action on the acid mixture; but when a small drop of alcohol was stirred up intimately with the glycerine, the change in the acid mixture soon detected its presence. (Does not this suggest that the acid mixture of chromate of potassa and sulphuric acid may serve, in many cases, to bring to light alcoholic adulterations of liquids, as well as sometimes a mixture of different oils?)

On trial with chromic acid in water, I was not successful in obtaing like results with the oils; that is, they effected no change in the acid. Does the sulphuric acid in the mixture, in consequence of its affinity for water, deprive the chromic acid of a part of its oxygen and the oils of an equivalent of hydrogen, so as to form that fluid? Be this as it may, the sulphuric acid plays an important part in the phenomena described.

Richmond, Indiana, 3d mo. 3d, 1856.

AN ESSAY ON GILLENIA TRIFOLIATA.

By William B. Stanhope.

(*An Inaugural Essay presented to the Philadelphia College of Pharmacy.*)

Professor R. P. Thomas, when lecturing on Gillenia trifoliata, before the Class of the Philadelphia College of Pharmacy, expressed a desire that some one of the students, wanting a subject for a Thesis, would take up this article for that purpose and examine it. In compliance with this request, I have been induced to make some experiments, for the purpose of isolating, if possible, the active principle.

Experiment 1*st.* Eight ounces of the coarsely powdered cortical portion of the root was exhausted by percolation with

absolute alcohol. The tincture thus obtained was of a red color, possessing the odor and taste of the root; the result of the addition of a few drops of the tincture of chloride of iron, was a blue-black precipitate (which was not dissipated by heat.) Gelatin threw down a white precipitate, proving the presence of tannic acid.

Experiment 2*d.* The alcoholic tincture thus obtained was evaporated to the consistence of an extract; this was then treated with cold water, and the solution filtered and evaporated to a syrupy consistence, spread on glass and dried. The water took up most of the coloring matter and tannic acid, with a small portion of the active principle, which made the product assume a reddish-brown color, with an astringent and bitter taste, very deliquescent and soluble; this is impure gillenin.

Experiment 3*d.* Another process was then resorted to in order to obtain gillenin in a pure form: thus, a portion of the impure article was dissolved in water, acidulated with sulphuric acid, and magnesia added to saturation. The solution was then evaporated, and the residuum dried, powdered, digested in strong alcohol and filtered. The solution was then concentrated and dried with a gentle heat. But the result was unsatisfactory, for though deprived of tannic acid, it still contained a large quantity of coloring matter, which occasioned deliquescence.

Experiment 4*th.* The substance which remained after the alcoholic extract was treated with water, had a resinous appearance, a very bitter taste, and a marked odor of the root; this was macerated in water, acidulated with sulphuric acid for ten days and filtered, then saturated with magnesia, evaporated and dried. To this, alcohol was added for the purpose of taking up the active principle, this was filtered and the solution set aside and allowed to evaporate spontaneously. The residue was collected from off the sides and bottom of the capsule and reduced to powder.

PHYSICAL AND CHEMICAL PROPERTIES OF GILLENIN.

It is whitish, unalterable in the air, having a slight odor and very bitter taste, soluble in water and alcohol either cold or hot, ether, and dilute acids; neutral to test paper; concentrated nitric acid produces a blood red color, chromic acid a fine green color. No change is observable on the addition of tannic

acid; sub-acetate of lead, caustic potash, and tartar emetic, throw down white precipitates.

Effects of Gillenin on the human system.—One grain was dissolved in a fluid ounce of water, and taken in doses of one drachm at intervals of fifteen minutes; the fourth dose caused much nausea and retching, though not emesis. I have no hesitation in saying, had it been taken in a dose of half a grain, it would have proved emetic. Much vertigo was occasioned by the experiment, which remained for some time. Judging from this personal experiment, the proper dose of gillenin, when emesis is desired, would be half a grain, repeated if necessary. I think an elegant mode of administering gillenin, would be in the form of the alcoholic watery extractive, or a syrup made from that corresponding in strength to that made from ipecacuanha, as in its physical as well medical properties gillenin bears a marked resemblance to that important article of the materia medica. With regard to the less important proximate principles, I may state that I found coloring matter, fatty matter, fixed oil, and wax, in the alcoholic extract.

PHYSICIANS AND PHARMACEUTISTS AND THEIR RELATIONS.

By J. M. Maisch.

(Continued from page 113.)

It is a bad practice for apothecaries to undertake the treatment of diseases; such a course has been denounced by all true practitioners of medicine and pharmacy. On the other hand, physicians who set up drug stores of their own are equally censurable. Physicians have an aversion to allowing their prescriptions to be put up at such establishments, if it be only for their not liking to have their recipes and mode of treatment criticised by other physicians whom they do not wish to consult. Such stores, therefore, are intended for the physician's own practice; but if their practice is so large as alone to support an apothecary's establishment, however small it may be, they certainly cannot be expected to pay much attention to it. Wherefore, then, keep the store? A clerk, however insignificant his knowledge and experience may be, if

he has learned to read his physician's hand-writing and compound the medicines he prescribes, is very often to be found at such a store, which has been commenced for the sake of money-making. Certainly any man is worth a just reward for his labor and services, but we oppose the notion of the vocation of a physician or pharmaceutist being only a source for making money as fast as possible; and as much as we denounce the practising of medicine by an apothecary, just as much we are opposed to the practice of pharmacy by a physician. We are aware of the fact that circumstances may compel a physician to be also in some degree an apothecary, and act as such, just as an apothecary may, in cases of emergency, be called upon to prescribe remedies without waiting for first consulting a physician. But such cases will be of rare occurrence, except in thinly populated districts and in seasons of epidemics.

Physicians and pharmaceutists do not always regard their mutual and reciprocal interests. But one of the grossest misunderstandings of these interests is the demand, by the physician, of a *per centage* of the charges for medicines of his prescription. We cannot say how far such a demand exists, but we know that it does exist. It is but very seldom that this can be found out; then it is the interest of both the physician and apothecary to keep it secret, and the necessity of this secrecy already shows the meanness of such a bargain. If a physician insists on a reward of this kind for allowing his patients to get their medicines at a certain place, the apothecary may perhaps be compelled to submit to the demand, in order to win for his business the confidence of the public, and to increase the number of his customers. But will any or both these objects be really gained? We have reason to express our doubt as an answer to this question. Evidently the pharmaceutist wants pay for his labor and for the medicine, and we think, in most cases, he will charge in conformity with the value of the ingredients of the medicine and the amount of his labor; and such a charge we call reasonable and moderate, a compensation rightfully belonging to his skill and his devotion to the profession. Now, he either has to charge a corresponding sum more for the medicine, in order to obtain what is due to him after paying the demanded per centage to the prescribing physician, and then he over-charges the public,

or, without over-charging, he pays the per centage and consequently loses the reward for his labor. In both cases it is an extortion, either from the public or from the pocket of the pharmaceutist. We know a physician who obtains 25 per cent. of the charges for the medicines prescribed by him, and his patients have to pay one-third over the real value of the same, charges for labor, &c., included, so that the physician, who of course demands pay for his consultations and visits, may pocket the agreed upon one-fourth of it. Others we know obtain 20, 15, 12½ and 10 per cent. in this way. By and by the public will find out that they constantly have to pay a high price for their medicines and will call in another physician, for the first one would not allow them to carry their prescriptions somewhere else, under the plea that this was the nearest, if not the only establishment where he knew his prescriptions were put up accurately. Ultimately the taking of per centage must prove at least disadvantageous to the physician and to the apothecary also.

We have tried to give an outline of some wrongs clinging to the practice of medicine and pharmacy; in doing this, our object has been to draw the attention of physicians and apothecaries to the same, not as to something new, but as to something that demands the co-operation of both professions for its removal. Once in a while a voice has been heard in opposition to such wrongs; projects to subdue them have been published, but little notice has been taken of them. Could not the medical and pharmaceutical journals of the country take up the subject in earnest—open their pages for a discussion of these evils, and the propositions for their suppression? We repeat what we have said before:—in many cases physicians and pharmaceutists do not pay much attention to their mutual and reciprocal interests. It is only by their harmonious action in general that their vocations can attain that esteem and influence in common life and in science, to which they are both entitled, and the commencement of that harmony, we think, should be a decided stand against the grossest evils, which are apt to drag science down to the dust of humbug and quackery.

New York, December, 1855.

ON COMPOUND SYRUP OF IPECACUANHA AND SENEKA.

By Frederick Stearns.

To the Editor of the American Journal of Pharmacy:—

Dear Sir,—Among the many non-officinal remedial agents of a local origin and use, some of them are fully worthy of more extended notice. In view of this fact, and knowing the active influence exercised by the American Journal of Pharmacy in bringing into notice preparations of this kind, I am led to submit to your consideration (and to the readers of your journal, if deemed worth the room it would occupy in its pages,) the following formula for "Jackson's Pectoral Syrup," as it is called here, but which bears but little resemblance to that preparation as published in Parrish's Practical Pharmacy, page 196.

Its ingredients suggest "compound syrup of ipecacuanha and seneka," as a proper name for it.

The formula given me was as follows:

Take of ipecacuanha *one ounce;* seneka, *three ounces;* refined sugar, *two pounds;* sulphate, or muriate morphia, *sixteen grains;* oil sassafras, *ten minims;* make *two pints* of syrup.

In making it I pursued the following plan, which I deemed best suited to the nature of the materials used, and succeeded in forming a bright clear syrup, permanent and possessing in an active degree all of their medical efficacy. Using the officinal weights, macerate the ipecacuanha in coarse powder, for fourteen days, in *one pint* diluted alcohol, U. S. P., express, filter, and evaporate to *six fluid ounces* and set aside. Next digest in a suitable apparatus the seneka in coarse powder, with *ten fluid ounces* of water and *two fluid ounces* of alcohol, 85 per cent., at a heat not exceeding 104° F., for six hours, strain, express and filter, adding, if necessary, enough water to make *ten fluid ounces.* Mix with this the tincture first obtained, and dissolve in it the sugar, at a gentle heat; strain, and while yet warm add the morphia and oil sassafras, dissolved in a very little warm alcohol.

The maximum dose is from one to two teaspoonfuls. It is a favorite prescription with very many of our physicians as an anodyne and expectorant in coughs, etc., the combined effect of

the ingredients being much greater than that resulting from the use of preparations made from either of them separately.

Truly yours,

FREDERICK STEARNS, Pharmaceutist.

Detroit, Michigan, March 25th, 1856.

ON CASTOR OIL BEANS.

By GEORGE J. SCATTERGOOD.

(*An Inaugural Essay, presented to the Philadelphia College of Pharmacy.*)

The following experiments with castor oil beans were conducted chiefly with the view of examining the similarity which was suggested might exist between their constitution and that of the kernels of the almond, (H. C. Bowers' Essay, Journ. Pharmacy, vol. xxvi. No. 3.) A few experiments were also tried to ascertain the existence of gummy matter and resin, as usually stated.

When 2 ounces of dry beans were percolated by alcohol and the tincture evaporated, a turbid oil weighing 313 grs. was obtained. The dried marc afterwards yielded to ether 154 grs., making a total of 467 grains, or 53 per cent. of impure oil.

The dried marc from the ethereal tincture, percolated by water, yielded after evaporation and subsequent treatment with boiling alcohol, a substance of a hard consistence, breaking with a conchoidal fracture, and readily soluble in water, from which it was precipitated by alcohol and sub-acetate of lead, of a light color thus indicating gummy matter.

A portion of oil obtained by strong alcohol was mixed with alcohol, ether and liquor potassæ, and agitated. The liquid separated into two portions; the lighter, of a whitish and soapy appearance; the heavier, of a reddish color. The former, upon standing, deposited a dark-looking and resinous substance, which was insoluble in ether.

By agitating an emulsion of the beans with ether, separating the heavier liquid and mixing this with alcohol, a precipitate of emulsin gradually fell. In solution this impure emulsin had an acid reaction, and produced the bitter almond odor after three days contact with amygdalin.

The beans previously percolated by ether were treated with boiling alcohol. This tincture, after evaporation, was mixed

with ether and agitated, when small crystalline grains attached themselves to the sides of the bottle. They were insoluble in cold alcohol.

The above experiment yielded so small a quantity of crystalline matter, that it was with a slight alteration repeated. After treating the beans with ether and boiling alcohol as before, the sediment which collected on cooling was removed and exhausted by cold water. This watery fluid should contain any principle existing in the seeds, which, like amygdalin, is soluble in cold water and boiling alcohol, but insoluble in cold alcohol. This aqueous liquid, however, failed to affect a solution of emulsin, and did not yield, upon evaporation, any perceptible amount of solid matter.

The peculiar odor of castor oil which is generated when the beans are bruised with water, was much more readily developed when specimens eight or ten years old were used, than when those collected last year were tried. With the former, a few minutes maceration was sufficient, but the others did not yield it after twelve hours contact with cold water. The marc left from the successive action of ether and alcohol upon the old beans, evolved a peculiar odor after three days maceration.

The distilled water of castor oil beans possessed a peculiar and nauseous odor, quite distinct from that of the oil. Its opalescence was not removed by agitation with ether. Ether did not appear to take anything from it. It was found to be decidedly purgative in doses of f.$\bar{z}$ss. In 4 or 5 cases in which it was tried, it operated promptly; one fluid ounce produced both purging and vomiting.

The marc which was left was cathartic in doses of 14 and 28 grains.

An ethereal tincture prepared by percolation and subsequent spontaneous evaporation until the ether was driven off, was administered in doses of f.$\bar{z}$ij. and f.$\bar{z}$iv. in seven cases, in all of which it proved a certain and milder cathartic.

The beans, after treatment with alcohol and ether, produced no medicinal effect in the dose of 28 grains.

These experiments seem to show that these beans have a constitution differing markedly from that of the bitter almond. The former do not appear to develope their powers until they have ac-

quired a certain age; (4 beans collected last fall having been taken in 24 hours without any marked effect). Their active principle, (if generated by contact with water,) unlike hydrocyanic acid, is not entirely driven over by distillation.

It may, however, be found hereafter, that, like many other oleaginous seeds, they undergo a peculiar and spontaneous alteration, which may result in the formation of a volatile and powerfully purgative principle.

ON SOLUTION OF GUTTA PERCHA.

By J. M. Maisch.

Collodion, when applied to the skin, contracts it, and is objectionable in many cases for this reason. For the removal of its contractile power, and to impart more softness and elasticity to it, the addition of several substances has been proposed, and the admixture of some coloring matter to imitate the color of the skin. Since Dr. Graves proposed a solution of gutta percha in chloroform for the treatment of certain diseases of the skin in place of collodion, the former has been tried by physicians, and some are using it now very extensively. Being desired to prepare some, I followed the process of Dr. Geiseler, which was published in the *Archiv. d. Pharm.*, July, 1855. One part gutta percha is to be dissolved in 8 parts spirits turpentine, the solution filtered and mixed with alcohol of 90 per cent. until a precipitate ceases to appear, which must be boiled successively with alcohol and water, and afterwards well dried. Of this purified gutta percha one part may be dissolved in 12 parts of chloroform, when a clear, almost colorless solution is obtained, which has a faint smell of turpentine.

In following these directions strictly, I found that a large quantity of alcohol is necessary to precipitate the gutta percha, of which the filtered or decanted liquor deposits another quantity after standing for several days; the coloring matter is precipitated along with the gutta percha, and, though it was always deposited underneath the latter, still it wanted a mechanical separation, and some loss of the white gutta percha was unavoidable. The process of washing it by boiling in alcohol and water

is tedious, as it strongly retains some turpentine, which, though faintly, may be smelt in the chloroform solution. This solution, on standing a day, separated some white scum like cream above the milk; by this observation I was induced to try another way for preparing a light and clear solution, and was successful with the following very simple process: One part of the best commercial gutta percha was cut into small pieces, and by agitation dissolved in 12 parts of chloroform; on standing for a day all the coloring matter rises like scum to the surface, leaving the solution as clear as Dr. Geiseler's; this may then be easily drawn off to the last drop. A wide glass tube, narrower on the bottom, and so arranged that both ends may be closed by corks, is the only instrument necessary; after the separation is complete, the upper cork must be removed and the lower one loosened, so as to allow the liquid to run out slowly; thus prepared, the only loss will be some chloroform, which is insignificant when compared with the loss of material and time of Dr. Geiseler's method. The advantages of this solution over collodion consist in the absence of the contractile power and gloss of the latter, and in the close resemblance to the skin in appearance and elasticity.

New York, March, 1856.

REMARKS ON THE UNITED STATES STANDARD OF SPECIFIC GRAVITY FOR INDICATING THE STRENGTH OF ALCOHOL, AND ON THE OFFICIAL HYDROMETER.

SOUTH BOSTON, Feb. 8th, 1856.

MR. W. PROCTER, JR.

DEAR SIR,—My attention has been directed to an article on the strength of certain acids and alcohol, by A. P. Sharp, published in the Proceedings of the American Pharmaceutical Association. The instruments in use here, I think, are not constructed by Tralle's tables, as published in Ure's Dictionary of Arts. In view of the uncertainty of strength of alcohol as an article of commerce, I think you would do a great service to purchasers and those who have occasion to use the article, if you would publish in your journal the U. S. standard of specific gravity for such strengths of alcohol as are in common use. * * * *

If there be any standard or rule based on the action of Congress,

by which, when the temperature and the specific gravity are known, the per cent. of commercial alcohol can be known, I think it will be valuable information.

A table containing such information must, of course, in addition to the specific gravity of each per cent. of alcohol, state whether the per cent be in weight or in measure or volume. I am quite sure that the table in the U. S. Dispensatory under the head of alcohol, is not the standard by which the distillers' instruments here are made. I this day weighed a sample of alcohol, which I bought for 80 per cent., at the temperature of 60°. It is 0·834. Now, by the U. S. Dispensatory, it is nearly 85 per cent. by weight, and by Ure's tables nearly 90 per cent. by measure, of alcohol.

I think it would be desirable to know the U. S. Custom House standard for first, second, third and fourth proof spirits, and what is meant by so much above, or below proof; in other words, what are the respective specific gravities of these spirits.

If there be no standard based on the action of Congress, perhaps the usage of those who make the hydrometers for the Custom House could be obtained and published. At all events, it seems to be very desirable for me, if I am about to purchase a pipe of brandy of a given proof, or a barrel of alcohol of any given per cent., in a distant part of the country, to know what specific gravity I am entitled to receive. * * * * *

Yours respectfully, CHARLES MEAD.

[On receiving the above letter, although we had at command Prof. McCullogh's valuable "Report," we preferred to refer it to Mr. Sharp, of Baltimore, whose judicious remarks before the Association had called it forth.—EDITOR.]

BALTIMORE, April 4th, 1856.

MR. W. PROCTER, JR.

DEAR SIR,—In reply to the inquiry whether there is a United States standard for estimating the strength of spirits, I will say there is a very complete and reliable calculation made by Prof. R. S. McCulloh, and under the superintendence of Prof. A. D. Bache, U. S. Coast Survey Office.

The title of the two works published by order of Congress are as follows: "Report of the Computation of the Manual of Tables

to be used with the Hydrometer," and the "Manual for Inspectors of Spirits." The latter is divided into three parts, as follows: A table showing the true per cent., by volume, of any spirits or alcohol varying in temperature from 20 to 100° Fahrenheit. The second part is to tell the true value when the quantity or volume of the spirits is known, but the temperature being above or below the standard, 60° F. The third table is a combination of the other two.

The standard of proof is fifty per cent. by volume or measure, that is to say, one pint of absolute alcohol and one pint water makes proof spirits, which is fifteen degrees weaker than the London proof; or by Sykes' Hydrometer, specific gravity 936. Second proof is five degrees stronger, 52½ per cent. alcohol, and has a specific gravity of 931. Third proof 10 degrees stronger, 55½ per cent. alcohol, specific gravity 925. Fourth proof 15 degrees above proof, 58 per cent. alcohol, specific gravity 920, and is London proof.

The best instrument, the cheapest, and the one the United States have adopted for all the custom houses as their standard for testing the strength of spirits from one to 100 per cent., is Gay Lussac, or Tralle's hydrometer or Alcoholmeter, made by Luhme & Co. and Greiner, of Berlin. They have been tested by the most accurate balances, and found the most reliable, as the common ones, of brass, copper and silver, are liable to oxydation and corrosion, which of course affects their accuracy. They are made with a thermometer in the bulb, the degrees of which either correspond with the graduation of the instrument, or a Fahrenheit. If the former and the mercury stands at 0, and the stem indicates 80 per cent. alcohol, that is the true per cent. If it should stand at one degree below 0, the true per cent. would be 81, as the alcohol would be too cold; and if at one degree above, the true per cent. would be 79, as it would be too warm. For every degree above or below, one per cent, is to be added or subtracted.

If they have the Fahrenheit scale in the bulb, every five degrees above or below 60° makes a difference of one per cent., using the same rule as above, adding when below and subtracting when above 60°.

This instrument I think of great importance to pharmaceutists.

I forgot to mention that they usually have two scales on them—Richter's scale, which shows per cent. of alcohol by weight, and Tralle's, which, as I said before, indicates the per cent. by volume.

Yours truly, A. P. SHARP.*

*NOTE.—These Berlin instruments may be had in this country of Mr. Weightman, of Boston; H. Gœbeler, 343 Broadway, N. Y.; Bullock & Crenshaw, 6th and Arch streets, Philada., and A. P. Sharp, at Howard and Pratt streets, Baltimore. Some of them are without the thermometer attached, but they are greatly preferable with this addition.—EDITOR AM. JOURN. PHARM.

THE REACTION OF IODINE WITH THE ALKALOIDS.

BY ROBERT F. FAIRTHORNE.

When the liquor iodinii comp. of the U. S. Pharmacopœia is added to the solution of sulphate of morphia, U. S. P., a copious reddish-brown precipitate is immediately produced. Laudanum treated in the same way produced a similar precipitate. These precipitates are soluble in alcohol. Quinia, strychnia, veratria, aconitia and atropia, dissolved in water by the addition of an acid, exhibit the same reaction with the liquor iodinii comp. as morphia.

The precipitates from aconitia, veratria, strychnia, and probably from all the alkaloids, are not dissolved by dilute acetic acid, U. S. P., dilute muriatic acid, U. S. P., or by the officinal sulphuric acid diluted with 40 times its bulk of water.

A solution of strychnia (one grain to five drachms) treated with the liq. iodinii comp. retained only a slightly bitter taste.

Query. Could not the above named solution of iodine be used as an antidote to some of the alkaloids, as by its penetrating properties entering the tissues of the stomach and combining with the absorbed poison, it would form an insoluble compound?

A case of poisoning by extract of belladonna, in which a similar preparation of iodine was successfully employed as an antidote, is recorded in the American Journal of Pharmacy, November number, 1855.

Philadelphia, April, 1856.

TEST FOR THE PRESENCE OF ALCOHOL IN CHLOROFORM.

By William Procter, Jr.

Being recently engaged in some experiments for Prof. Wood, on the solubility of chloroform in water, with and without the aid of alcohol, I was struck with the greater solubility of that substance than the books admitted, when it was suggested that the chloroform might be impure. To ascertain this, its specific gravity was taken with great care, and found to be but 1.482. Suspecting alcohol to be present as the cause of this levity, it occurred to me that an oxidizing mixture of bi-chromate of potassa and sulphuric acid would indicate its presence without being interfered with by the chloroform. When a portion of the suspected chloroform was added to the deep orange colored sulpho-chromic mixture, the color soon changed and gradually became green from the formation of sulphate of chromic oxide. Another portion of the chloroform was then mixed with an equal bulk of concentrated sulphuric acid, and agitated occasionally for several hours; the acid gradually becomes discolored and brown. When, now, a part of the supernatant chloroform was added to the sulpho-chromic mixture, no change occurred after standing a week.

As this chloroform, which was made in Philadelphia, had probably been washed in water, it follows that mere aqueous treatment will not remove the last portions of alcohol, and that agitation with chloride of calcium or sulphuric acid is necessary to effect its abstraction. The latter, however, as recommended by Gregory is objectionable as giving a tendency to the chloroform to eliminate chlorine.

For medical use, however, the small percentage of alcohol present is perhaps of no account, and it is probable that the larger part of the commercial chloroform is less contaminated than the specimen tested. As corroborative of this reaction it may be observed that Dr. Plummer, of Indiana, in experimenting with the sulpho-chromic mixture on volatile oils, noticed that it was colored green by chloroform, which he believed was due to that body, whilst in reality it was the alcohol contained in it.

ON A PROCESS FOR MAKING DENSE AND SOFT MAGNESIA.

By Thomas Weaver.

A ready process for the manufacture of a magnesia of this description has long been a desideratum, and the subject of frequent experiments, as it can now be obtained only in bottles at a price inconveniently high to a large class of purchasers. The researches of Mr. Thomas H. Barr, published in this Journal, vol. xxvi. page 193, are among the most useful pertaining to the study of this subject, although the products obtained by him, both by the precipitation of the carbonate from hot concentrated solutions of the carbonate of soda, and sulphate of magnesia and subsequent calcination, and that by the decomposition of the chloride at a high heat, were pronounced rather inferior in softness, though exceeding in specific gravity, and absolute amount of magnesia, the specimens of Henry's, Husband's, and Ellis' examined. Having been much interested in the experiments of Mr. Barr, I have frequently recurred to the subject, and reasoning from the known fact, that the density of the carbonate, bears a close relation to the temperature at which it is formed, have arrived at the following process for the precipitation of a carbonate, which by calcination at a proper temperature yields magnesia in a remarkably soft and elegant condition. And in offering this simple formula to pharmaceutists, it is with a hope that it may induce those having a demand for a fine quality of magnesia, to prepare it for themselves, and to attempt further improvements in its preparation, as it will be seen to possess the merit of cheapness, and may be accomplished without the use of costly apparatus.

Take of Sulphate of magnesia, . . ℥iv. ʒij.
Bi-carbonate of soda, . . ℥iij.
Nitric acid,
Carbonate of soda,
Water, of each a sufficient quantity.

Dissolve the sulphate of magnesia in six ounces of water, add a few drops of nitric acid, and boil for fifteen or twenty minutes; then add sufficient carbonate of soda, dissolved in a little water to produce a slight precipitate, and continue boiling for some time, filter, and set aside to cool. Triturate the bi-carbonate of soda with about eight ounces of *cold* water, and add it to the cold solu-

tion of sulphate of magnesia; after frequent agitation filter, transfer to a porcelain capsule, and boil quickly till reduced to a small bulk; collect the precipitate on a filter, wash thoroughly, and when nearly dry, transfer to a crucible free from iron and calcine, bearing in mind the suggestion of Mr. Barr, "that a low heat just approaching to redness and long continued, will ensure a much finer product than a high heat for a short time;" which also corresponds with my experience, some specimens being completely ruined by neglecting this precaution.

The magnesia thus prepared is very soft and velvety, of a dead white color, and a specific gravity of 3.50, or rather heavier, probably from being made in small quantity, thereby ensuring more care than would be possible if larger quantities were made.

The rationale of this process is the following: The addition of NO^5 to the solution of sulphate of magnesia peroxidizes the iron present, if any, and the subsequent ebullition after precipitating a little carbonate of magnesia by the addition of the carbonate of soda precipitates the ferruginous oxide.

When cold solutions of bi-carbonate of soda and sulphate of magnesia are mixed, no precipitation occurs; but when the mixture is boiled, carbonic acid is given off, and carbonate of magnesia of a very dense texture settles to the bottom, different in its character from that which is formed by mixing hot solutions of the sulphate and carbonate. When the carbonate in this dense form, is calcined at the low heat mentioned above, the product has the great density and the smoothness so desirable.

Philadelphia, April, 1856.

REMARKS ON FLAVORING EXTRACTS.

By the Editor.

A correspondent having requested information relative to the recipes for making several flavoring extracts suitable for culinary use, we have deemed it not out of place to present such of them as are in our possession to the readers of the Journal, some of whom may find them available.

Extract of Lemon.

Take of the Outer yellow rind of the lemon	2 oz.
Alcohol 95° (Atwood's deodorized)	1 pint
Pure oil of lemons	2 fluid oz.

Let the lemon rind be exposed to the air until it is partially dried so as to be less aqueous—then add it to the alcohol, and after the color is extracted add the oil. If the latter does not form a clear solution at once, let it stand a day or two and filter when transparent.

Ordinary (80 per ct.) alcohol is not sufficiently concentrated for this use, but Atwood's pure alcohol has been found well adapted for the purpose, as being stronger than ordinary deodorized alcohol.

Extract of Orange.

Take of the Outer rind of sweet oranges	2 oz.
Alcohol 95°	1 pint
Recently opened oil of orange	2 fluid oz.

Proceed as in the recipe for extract of lemons.

Much of the oil of orange sold is wholly unfit for this use—as it is, even when not adulterated, so prone to oxidation and loss of fragrance by exposure, that it soon becomes unfit for use. This oil should be at once introduced into bottles from the original can and sealed.

Extract of Bitter Almonds.

Take of Oil of bitter almonds	2 fluid drs.
Alcohol (Atwood's)	a pint.
Tincture of turmeric	½ drachm or q. s.

Mix them. The directions accompanying this preparation should state that it is poisonous in large quantity.

Extract of Rose.

Take of Oil of roses	1 fluid drachm.
Hundred-leaved roses, fresh or dried	1 oz.
Deodorized alcohol	2 pints

Bruise the rose leaves, extract them with the alcohol by percolation or by maceration and expression, and dissolve the oil in the tincture, and filter.

Extract of Cinnamon.

Take of Oil of cinnamon	2 fluid drac.
Ceylon cinnamon	½ oz.
Deodorized alcohol and water of each	1 pint.

Mix the alcohol and water together, then add the oil of cinnamon in coarse powder and agitate occasionally for an hour or two, then pour the mixture into a small displacer in such a man

ner that the tincture will filter through the dregs of the bark and become transparent. This preparation is infinitely better when made from the oil of Ceylon cinnamon, but the high price of that oil will probably induce the use of the oil of Cassia.

Extract of Celery.

This extract is employed as a condiment for meat sauces, rather than pastry. In France the leaves and fruit, or seed so called, are distilled to get a volatile oil under the name of *huile d'ache*, and the extract used there is probably an alcoholic solution of the oil of celery. The extract of celery used in this country is made from the seeds by percolating them with concentrated alcohol. The following is our recipe:

Take of Celery seed (Apium graveolens)	2 oz.
Deodorized alcohol, (95 per ct.)	
Water, of each a sufficient quantity.	

Bruise the seeds finely, put them into a small displacer, and pour the alcohol upon them until a tincture has passed, then pour on sufficient water till a pint of infusion is obtained, mix the tincture and infusion, triturate with ʒi of carbonate of magnesia and filter through paper. The filtrate will be ready for use. As made by this recipe the extract of celery has a light brown color, an agreeable odor, and a well marked taste of celery.

Extract of Ginger.

Take of Jamaica ginger	4 oz.
Alcohol	a sufficient quantity
Simple syrup	½ pint

Put the ginger in coarse powder in a displacement apparatus, and add alcohol gradually until a pint and a half of tincture has passed; to this add the syrup and mix. If properly prepared, no precipitation occurs in the resulting "extract."

Extract of Mace.

Take of Oil of nutmegs	2 fluid drachms
Mace in coarse powder	1 oz.
Deodorized alcohol	2 pints

Mix the oil and mace together, add them to the alcohol, and after several hours maceration filter them by displacement.

The extracts of black pepper and cayenne pepper may be made by the formula for extract of ginger; and the extract of cloves and allspice by that for extract of mace with their respective oils.

GLEANINGS,—PHARMACEUTICAL, CHEMICAL, AND MEDICAL.

Extract and Plaster of Belladonna.—Mr. Thomas Southall, (Pharm. Jour. Feb. 1856,) good authority on this subject, thinks the carefully dried leaves of narcotic plants, when extracted by diluted alcohol, afford extracts superior to those obtained by the inspissation of their expressed juices. He also recommends the hydro-alcoholic extract of Belladonna, in preference to the inspissated juice for making Belladonna plaster. Ordinary extract of belladonna, when used, is softened by water with the aid of heat till of a syrupy consistence, and then sufficient alcohol added to precipitate the gum and other matter insoluble in that fluid. After filtration the alcohol is regained by distillation and the evaporation continued till the extract has a thick honey-like consistence, when it is incorporated with the proper proportion of adhesive plaster previously melted. Thus made, Belladonna plaster adheres firmly to the skin and is more readily spread.

Comp. Fluid Extract of Tephrosia Virginiana.—Dr. B. O. Jones of Atalanta, Georgia, recommends a preparation made by boiling *eight* ounces of Tephrosia Virginiana, (the plant,) and two ounces of Rumex acutus in *four* quarts of water till reduced to one quart and then strain. When intended to be kept, mix with an equal bulk of diluted alcohol or brandy, and half its weight of sugar, macerate for several days, and strain through muslin.

The dose of this preparation is one to two tablespoonfuls. Dr. Jones describes this medicine as a mild, stimulating tonic, having a slight action on the bowels, and the secretive organs generally," and applicable in the treatment of many diseases, especially in a certain stage of typhoid fever, where there is little use of active medicine. Dr. R. E. Griffith (*Medical Botany*, 238) says of this plant that "the roots were used by the Indians as a vermifuge, before the settlement of the country by the whites, and are a popular remedy in many parts at the present time. the mode of administration is the decoction, which is said to act powerfully, and to be as effectual as Spigelia; it has not, as far as can be ascertained, been employed in regular practice; but it deserves a fair trial, as other species are possessed of active qualities, especially of a purgative character."

On the Therapeutic Action of the Vapor of Bi-Sulphuret of Carbon.—Dr. Calvin G. Page (Boston Med. and Surg. Jour., page 77, 1856) recommends the vapor of bi-sulphuret of carbon to be applied externally, for neuralgic and rheumatic pain, by holding a wide-mouthed vial, containing half a drachm of that liquid, so that the vapor will be brought in contact with the part affected. The vapor produces at first a sensation of coldness, then a feeling of warmth with prickling, which rapidly increases until it can no longer be borne. Dr. Page believes it to be a valuable agent for the temporary relief of pain, and in certain cases with permanent benefit.

Aconite and Horseradish roots.—Robert Bentley, Prof. of Botany and Materia Medica to the London Pharmaceutical Society, in a lucid paper published in the April number of the Pharmaceutical Journal, says, "Several fatal cases of poisoning have occurred by the accidental substitution of monkshood, or, as it is commonly called, aconite root, for horseradish," and then gives a minute description of this root, accompanied by an engraving of the roots of several species of Aconitum. This substitution of roots, so different in appearance and sensible properties, might be wondered at, did not equally improbable mistakes occur nearer home. But a short time ago, two cases of poisoning occurred from eating the root of Cicuta maculata, or water hemlock, in mistake for some edible root. As Aconite is not found in the United States beyond the precincts of the ornamental garden, it is not likely that this mistake will occur here.

Accidental Poisoning by Aconite.—At the assizes of Armagh, March 7th, James M'Caull and Samuel Townley Connor, assistants in the shop of an apothecary, at Newry, were indited for manslaughter, because through ignorance or carelessness, they had caused the death of Capt. Kent, by using tincture of aconite root for tincture of chiretta. The prisoners were found guilty, and sentenced to the punishment of four months imprisonment.

Fecula of Colchicum Autumnale as a source of Alcohol.—M. F. Comar an éleve of the School of Pharmacy of Paris, states, (*Journ. de Pharm. Jan.* 1856) that the fresh bulb of Colchicum, yielded to him 21 per cent. of starch granules and that he was unsuccessful in detecting inulin, which has been announced as an ingredient of the cormus of this plant. M. Comar thinks this

large percentage of starch is worthy of attention as a source of alcohol; and by an experiment, extracted 64 centilitres (1⅓ pint) of that fluid from 14 lb. of the fresh bulbs.

New Test for Nux Vomica.—Vielgruth has proposed the following simple test for nux vomica. A few grains of the substance supposed to contain nux vomica is treated with proof spirit. The tincture is evaporated to dryness, at a temperature not exceeding 95° F. A drop or two of dilute sulphuric acid is added to the residue. The whole is again exposed to the above mentioned temperature; when, if nux vomica is present, a beautiful, carmine-red color ensues. If the heat be stopped in ten or fifteen minutes, the color disappears, but will reappear with less brightness on reheating.—*London Lancet.*

Paper containing Arsenic.—Vohl has found in a grey kind of blotting paper, about a grain of arsenic, five sixths of a grain of copper, and one grain of oxide of lead, per sheet. Such paper should be avoided in filtration, especially by the toxicologist. He attributed the presence of the arsenic to Schweinfurt green dye in some of the rags used to make the paper.

Aluminium as a substitute for Silver.—M. Regnault, of the imperial porcelain manufactory at Sevres, does not believe that aluminium will meet the expectations that have been created in its favor as a substitute for silver. He thinks it difficult to procure it pure; that in the Universal Exposition, containing over 10 per cent. of other metals, and its color is affected by them. It is extremely brittle, not easily drawn, and is an exception to the general atomic theory. Some spoons and forks seen at Bailey & Kitchen's, Philadelphia, made from French aluminium, present a decided contrast to silver, being more on the Britannia ware colour.

Oleo-Margarate of Zinc as a substitute for Lead Plaster.—M. de Mussey, during a residence at the Pyrenees, (says the *Boston Med. Jour.*) was struck with the fact that in those patients who made use of diachylon plaster, a black stain was caused by contact with the sulphurous water of the baths, in all places to which the diachylon had been applied. It was found that if the skin had been in contact with this preparation for a few minutes only, a sufficient quantity of lead would adhere to form a thick layer of sulphuret of lead, after being plunged in the water

which was with difficulty removed. Simply handling the plaster was enough to produce the same reaction with the mineral water on the fingers. This fact suggests that lead poisoning may occur by the external application of lead in this form. At the request of M. de Mussey, M. Boileau, Jr., of Luchon, in the Pyrenees, made some "zinc plaster" by precipitating white soap in solution with sulphate of zinc, and afterwards adding to the dried precipitate, resin, etc., as in diachylon. Its efficacy as a substitute for lead plaster has been tested affirmatively.

Diabetic Sugar secreted most abundantly after Meals.—M. Baudrimont, (*Journ. de Chimie Med. Fevrier*, 1856) in making a series of experiments on the urine of a diabetic patient, found that a litre (two and one-ninth pints, of urine voided two or three hours after dinner, yielded as much as three per cent. (463 grains) of glucose, whilst that tested on the following morning yielded but a trace. He therefore suggests that experiments made with a view to the presence of diabetic sugar should apply to the former period, and not, as is too frequently the case, to that obtained in the morning.

Action of Sugar on the Teeth.—M. Larez, (*Journ. de Chimie Med. Feb.* 1856) in a course of investigation, arrived at the following conclusions, viz.—

1. Refined sugar, from either cane or beets, is injurious to healthy teeth, either by immediate contact with these organs or by the gaz developed, owing to its stoppage in the stomach.
2. If a tooth is macerated in a saturated solution of sugar, it is so much altered in its chemical composition that it becomes gelatinous, and its enamel opaque, spongy, and easily broken.
3. This modification is due, not to free acid, but to a tendency of sugar to combine with the calcareous basis of the tooth.

Preservation of Vaccine Virus in a liquid state.—Dr. Maurin (*Journ. de Chimie Med. Mars*, 1856) says that glasses charged with the recent virus can be transported to great distances, and the virus preserved fit for use without moistening, by enveloping the glasses containing it in some fresh beet leaves, being careful to renew these leaves when they commence to fade or decay, say every 8 or 10 days. Dr. Maurin has used vaccine matter thus preserved for more than a month, with the best results.

Eau Sédative de Raspail.—This lotion is occasionally pres-

cribed in this city; the following formulæ are translated from Dorvault's officine, page 239. Three strengths are indicated.

	No. 1.	No. 2.	No. 3
Take of Solution of ammonia (22°)	60 parts	80 parts	100 parts
Tincture of camphor,	10 "	10 "	10 "
Common salt,	60 "	60 "	60 "
Water	1000 "	1000 "	1000 "

Dissolve the common salt in the water, then mix the camphor and ammonia together, and add them to the saline solution. M. Raspail intends No. 1 for persons whose skin is easily affected by rubefacients; No. 2 for the allaying the pain from the sting of insects, and No. 3 for those patients who have a hard, callous skin. It is employed in hemicrania, cerebral congestion, and rheumatic affections. It is applied by compresses to the part affected, and when near the eyes care should be extended to protect them.

ON THE CONSTRUCTION AND MANAGEMENT OF AQUARIA FOR THE PRESERVATION OF LEECHES.

By Mr. Alfred Allchin.

Having received a great many applications for particulars respecting the Leech conservatory, which I exhibited at the last Conversazione held at this Institution, I am induced to offer the following suggestions to those who are desirous of adopting that method of keeping leeches:—

A vessel, eighteen inches long, twelve inches wide, and ten inches deep, will be found to be of a size suitable for the preservation of any number of leeches not exceeding two hundred. This vessel may be made of slate and glass, or the slate may be replaced by wood lined with zinc, and the latter has the advantage of being cheaper and more portable than slate. I have found the following arrangement to answer the purpose well. The frame-work, together with the bottom and two ends, are made of birch-wood, and the top and two sides of glass. The inner surface of the wood, which otherwise would be exposed to the water, is covered with thin zinc, the metal being turned at the edges into the grooves prepared for the reception of the glass-plates, and fixed there with the cement by which the whole is united. The cement commonly used being composed of a mix-

ture of white and red lead, the part of it which is exposed to the water should be covered with shellac dissolved in spirit, and made into a paste with chalk. The water is thus prevented from coming into contact with any part of the wood-work, or becoming contaminated by the lead cement. The cover of the tank should consist of a wooden frame with a plate of glass fixed in the top, and having a rim with a piece of perforated zinc of about one inch in depth let in, for supplying air. This cover should fit on to the top of the tank like a shouldered box, so as to prevent the escape of the leeches, and at the same time to exclude dust.

Having thus prepared the tank, some coarse river sand, well purified by washing it with water, is to be mixed with small pebbles, and this mixture is to be introduced so as to cover the bottom of the tank to the depth of about an inch. A water plant is now to be selected. I have used the *Valisneria spiralis*, but this, not being a native of this country, it is sometimes difficult to obtain, in which case some other water-weed may be substituted for it, such, for instance, as the *Anacharis*, which chokes up many of our ponds and rivers. The roots of the plant are to be inserted in the sand, and the tank is then to be filled with clean river water. The next requisite is the water-snail, two or three of which should be introduced to consume the decaying vegetable matter and the conferva that grows on the sides of the vessel. I prefer the *Plenorbis corneus* for this purpose, having observed that this animal devours the slimy matter given off by the leeches, and does not, as the *Limnæa stagnalis* does, eat the *Valisneria* in preference to substances which it is most desirable to get rid of.

These preparations being made, before introducing the leeches I consider it better to let a week or two elapse, during which time the plant will have thrown off some oxygen with which the water will be charged; and with a view to the complete fulfilment of this object, it will be found advantageous to commence these aquaria in the spring of the year rather than the autumn. The best situation in which to place the tank is in a room, near to a window. If it were placed in too strong a light, such as it would receive in the open air, the water would be likely to become turbid from excessive growth of confervæ. Even under the conditions I have recommended, the glass sides of the tank will sometimes become more or less opaque, partly from the growth of

confervæ, and partly from the effect of leeches attaching themselves there. This unsightly appearance may be removed by cleaning the glass with a piece of rag or a nail-brush.

It is a common remark among Pharmaceutists, that the sale of leeches involves much trouble and little profit; a remark which, before adopting the plan here described for keeping them, I was fully prepared to coincide with, as it was not unusual for me formerly, when my leeches were kept in the old way, to lose six or eight in a day or two from my little stock. But I am certain that if the aquarian system were generally adopted, the complaint referred to would cease to exist. I have now tried it for two years, and the result has been quite satisfactory. I now scarcely lose more leeches in a year than I did formerly in a couple of days. In fact, the aquarium supplies to the leech the conditions under which it lives in a natural state, the plant affording oxygen so essential to animal life, and in return receiving its required supply of carbonic acid.

Mr. Redwood inquired whether it was found necessary to maintain any definite proportion between the animal and vegetable life in the aquaria.

Mr. Allchin had not found any difficulty in that respect. One or two plants sufficed for a large number of leeches. The number of snails required depended upon the quantity of confervæ present, and this was influenced very much by the light to which the aquarium was exposed.

In answer to other questions, Mr. Allchin stated that he had not found it practicable to keep fish with the leeches; the latter attacked the fish, especially their eyes, to which they fastened themselves, and they soon destroyed their prey in this way. He had originally expected that the leeches would propagate in the aquarium, but in this he had been disappointed.

Mr. Redwood said that some years ago experiments were made by M. Soubeiran, Jun., of Paris, on the propagation of leeches, and he found, with a view to that object, that it was necessary to keep them in ponds having clay or mud banks, which the leeches could enter. He thought that some modification of the aquarium might be made, by which this condition would be fulfilled.—*Trans. London Pharm. Society, in Pharm. Jour. April*, 1856.

ON THE PREPARATION OF REFINED LIQUORICE.

By Dr. Geisler.

The following investigations were made for the purpose of determining the best substance to be used as an addition to the purified or refined liquorice, giving it a dry and brittle character, and also to remedy the absorption of moisture from the atmosphere. He says, to gain this object I had formerly dissolved the crude liquorice in hot water and filtered or strained it through a woolen cloth of medium thickness, and then evaporated it to the proper consistence; as thus obtained, it did not possess a pure taste, and formed a cloudy solution with water. The liquorice used for the following investigations was in thinnish sticks without any stamp, and cost in Dresden about $20 per hundred weight. This was placed between alternating rows of straw and extracted, on the displacement principle, with cold water. The solution thus obtained was strained and evaporated on a steam bath to the consistence of a pill mass; one-fourth of the crude extract gave 46 oz., 72 per cent. of dried extract, which was perfectly soluble in cold water.

1st. A portion of this purified extract was rolled out into sticks without any other addition. To obtain the sticks in a perfectly round state, it was necessary to re-roll them six times during the time they were being dried, the temperature being raised to 313 F. After remaining in an apparently dry room for a few days, they became so soft and flexible that they could not be broken; under a bell-glass with water, one oz. of this extract absorbed in three days 62 grains moisture.

2d. Sixteen parts of the purified extract reduced to the consistence of a pill mass, were thoroughly mixed with one part of starch and then rolled into sticks. During the time they were being dried at a temperature of 90° F. they lost their rotundity, and required re-rolling several times. They lost their brittleness, like No. 1, in a dry room. One ounce of this extract, under a bell-glass with water, had increased 54 grains after three days. It was not quite soluble in cold water, but hot water made a perfect solution.

3d. Sixteen parts of the purified extract were mixed with one part finely powdered sugar of milk. To roll out this mass, it was

found necessary to add a few drops of water. On being dried at 90° F., they only required re-rolling once; after being kept for a few days in a dry room, they did not become flexible, but still did not retain their ready brittleness. One ounce under a bell-glass with water, increased in three days about 40 grains in weight.

4th. The observation of some former authorities, that the meal of peas recommends itself as a good addition to prevent the softening of this extract, brought him upon the idea that, not starch, but some vegetable substance containing starch, would be better adapted to obtain this brittle character; he says, I believe that I have found in finely powdered liquorice root, not only the most natural, but also an improvement to the taste of the refined liquorice extract. Sixteen parts of the purified extract were mixed with one part of finely powdered liquorice root, and on being brought to the consistence of pill mass, rolled in sticks. Dried at a temperature of 90° F., they required but one rolling, remaining in a dry room perfectly brittle. The taste was pleasanter than Nos. 1, 2 and 3. This extract was naturally not perfectly soluble in cold water; an ounce of it increased 24 grains after an exposure of three days with water under a bell-glass. From the above investigations, it will be seen that a more constant state of brittleness is obtained by the addition of powdered liquorice root to the refined liquorice; also, that a vegetable powder containing starch, is better adapted as an addition than starch itself.

The discovery that the addition of sugar of milk lessens the inclination of refined liquorice to absorb moisture, is not without some merit, as the powdered refined liquorice has a better stability, without injury to the complete solubility in cold water.—*Archiv. der Pharm.* S. S. G.

ON THE COMPOSITION OF CREOSOTE.

By E. Von Gorup-Besanez.

In previous memoirs, the author had shown that creosote prepared according to Reichenbach's directions, from beech wood tar, is quite a different body from phenylic acid. The author could not hitherto determine the formula of creosote with perfect

certainty. The investigation of a series of chlorinated products allowed the formula $C^{26}\,H^{16}\,O^4$ to be deduced for creosote with a certain amount of probability.

During the time in which the author had been occupied with this investigation, Völckel also published his investigation of creosote. According to Völckel, creosote prepared by Reichenbach's method is not pure, but contaminated by a small residue of volatile oils, which acquire color when exposed to the light. Völckel purified his creosote by solution in potash and distillation, and thus obtained a creosote, the analysis of which led to the formula $C^{24}\,H^{14}\,O^5$; a basic lead compound had the composition $C^{24}\,H^{13}\,O^4$, PbO+2PbO.

The creosote analyzed by Völckel dissolved in ordinary acetic acid and in dilute solution of potash, properties which Völckel regarded as a criterion of the purity of creosote. This creosote, therefore, differs from the author's in many points.

Völckel's creosote contained less carbon and hydrogen than the author's; it had a higher specific gravity (1·076 Völckel, 1·040 Von Gorup-Besanez,) and was perfectly soluble in dilute solution of potash and in ordinary acetic acid, whilst the author's was only partially soluble in these menstrua; when Völckel's creosote was heated with lime no color was produced, whilst the author's became blackish under this treatment. Both, however, were obtained from wood tar, the author's from beech tar, but the wood from which Völckel's was obtained is not stated; they had the same boiling point, and when boiled exhibited the same phenomena; on distillation with calcined lime, they furnished oils of nearly the same composition.

Völckel regarded the creosote treated by the author as not perfectly pure, because it was not treated with solution of potash. The author has therefore repeated his experiments. He treated one pound of creosote with solution of potash, according to Völckel's directions, and separated therefrom three to four ounces of a product boiling between 395° and 410° F., as pure creosote. This had the following properties:

It was a perfectly colorless, strongly refractive fluid, of an unpleasant odor, but decidedly purer than that presented by the commercial creosote, and somewhat similar to that of guaiacole. Spec. grav. at 55°·4 F.=1·057. With persalts of iron, salts

of gold and platinum, with fir chips moistened with muriatic acid and with nitrate of silver, it behaved exactly like the creosote investigated by the author, but dissolved completely and readily in dilute solution of potash and in ordinary acetic acid. By long standing in the air it acquires a tinge of yellow, and when dissolved in concentrated solution of potash it becomes slightly brownish, but grows gradually darker and darker until it has attained a dark brown color. Its analysis gave—

	I.	II.	III.			
C	74·76	74·98	74·85	24	= 144	75.39
H	7·78	7·84	7·78	15	15	7·85
O	17·17	17·48	17·37	4	32	16·76

As this creosote was purified exactly according to Völckel's directions, it is clear that the author's creosote could not be identical with Völckel's. Both crude products, however, were certainly obtained from wood tar by Reichenbach's method, whence it follows, that the products obtained in this way may vary. According to Völckel, in order to obtain a creosote free from certain volatile oils which contaminate the commercial product, and of the composition found by him, the boiling with solution of potash must be continued until the turbid distillate becomes perfectly clear on the addition of dilute solution of potash; and the solubility of creosote obtained by his method in ordinary acetic acid, and in very dilute solution of potash, is to be regarded as a sign of its purity. The author continued the boiling with solution of potash until the turbid distillate again became perfectly clear on the addition of dilute solution of potash; and creosote, purified by him in accordance with Völckel's method, was readily and completely soluble in very dilute solution of potash and in ordinary acetic acid, but nevertheless it possessed a different composition. Solubility in acetic acid and dilute solution of potash is not a property exclusively belonging to Völckel's creosote.

The result of the author's analyses of creosote, treated with potash according to Völckel's directions, come very near the average of the analyses of creosote not treated with potash.

The author then compares the formulæ to which the previous investigations of creosote have led. The formulæ are $C^{26}\,H^{16}\,O^4$, $C^{24}\,H^{15}\,O^4$, and Völckel's $C^{24}\,H^{14}\,O^5$; and he is of opinion that

none of them are to be regarded as rational formulæ for a determinate creosote, but only as empirical formulæ for different products. The author, at least, thinks that the facts furnish a proof that, by Völckel's process of purification, two different products are obtained from the crude wood tar creosote, one of which is of the composition C^{24} H^{15} O^4 (Von Gorup-Besanez) and the other C^{24} H^{14} O^5 (Völckel.) They are distinguished, as far as we know, only by the small difference in the specific gravity. The author also obtained a lead compound from his creosote. He mixed the solution with concentrated liquid ammonia, and diluted it with about 200 cub. centims. of water. On the addition of a solution of neutral acetate of lead, also diluted and mixed with a little ammonia, to this solution, a caseous white precipitate, separating in flakes like those of chloride of silver, was produced. This was washed on a covered filter, pressed between blotting paper, and dried first over sulphuric acid and afterwards at 212° F. It contained 64·80 per cent. of oxide of lead, which corresponds with the formula C^{24} H^{14} O^3, PbO + 2PbO. But the amount of lead is different according to the mode of treatment; in partial precipitations it was found that the first parts of the precipitate contained less oxide of lead. The lead precipitate loses creosote even at ordinary temperatures, and undergoes a change when dried at a temperature between 176° and 212° F.

Although it appears from this that the creosote investigated by the author was different from Völckels, the author tried, further, whether his creosote underwent an essential change by repeated treatment with potash. The creosote dissolved completely in potash, without the separation of any body. The boiling was continued for four days, each time five hours, without interruption. The solubility of the distillate in dilute solution of potash could no longer serve to indicate the stopping point, for it was soluble in very dilute solution of potash from the very commencement of the operation.

The distillate of the first day was turbid, exhibited some oil drops on the surface, and did not acquire any color by standing in the air. That of the second and third days gradually became violet-purple in the air. This beautiful violet-purple color was immediately produced when one or two drops of solution of potash

were added; a little ammonia (a trace) and perchloride of iron produced a dingy violet turbidity, and afterwards a discolored one. On the fourth day the distillate was again colorless, and no coloration was produced even by long standing and on the addition of potash; the operation was interrupted, and then the creosote was separated in the same way as the first time, distilled, and freed from water by rectification. The result this time was about an ounce of purified product, the general properties of which agreed with those of the first obtained. Its analysis gave—

C	73·53
H	7·68
O	18·79

These numbers show a diminution of carbon of nearly 1·5 per cent., with a very inconsiderable decrease in the quantity of hydrogen, but still no agreement with Völckel's numbers. The small quantity of material remaining was therefore submitted to another treatment with potash. The phenomena were exactly the same as above. This time also, after about five or six hours' boiling, the peculiar violet-purple coloration of the distillate made its appearance, and its behaviour towards potash and perchloride of iron was the same. After eighteen hours' boiling the operation was interrupted, and the creosote separated and purified exactly in the same way as before. The whole quantity still remaining after rectification amounted only to a few grammes. Analysis gave—

	I.	II.			
C	73.43	73·72	48	= 288	74·03
H	7·72	7·71	29	28	7·45
O	18·75	18·57	9	72	18·52

Thus, even by a third treatment of creosote with potash, no essential conversion takes place, although the distillates indicate several products of decomposition. By seventy-three hours' boiling, the body $C^{24}\ H^{14}\ O^{5}$ was not obtained.

It appears, from a comparison of the different analyses of Reichenbach's creosote, that this has no constant composition; in the existing analyses the carbon varies from 75·82 to 71·92, and the hydrogen from 8·16 to 7·10. As these investigations have shown that the creosote becomes poorer in carbon by treatment with potash, it is very probable that the treatment with

solution of potash, which is employed in Reichenbach's method, furnishes a different product according as it is continued a longer or shorter time. But whilst Völckel is of opinion that the treatment with solution of potash changes, destroys and separates certain oleaginous bodies which accompany the creosote, raising its amount of carbon and hydrogen and diminishing its specific gravity, the author thinks that it produces a change of the creosote itself, characterized by the elimination of hydrogen and absorption of oxygen.

At the conclusion of his memoir, the author suggests that creosote of the formula C^{24} H^{14} O^{5} may, perhaps, be still more highly oxydized by continued treatment with potash. By this means, perhaps, guaiacole might be obtained, a body which stands in close relation to creosote. Völckel has adopted for it the formula C^{15} H^{8} O^{4}, but the auther thinks that, from Völckel's analyses, the formula might just as well be calculated at C^{48} H^{25} O^{13}. We should then have—

C^{24} H^{15} O^{4}, the author's creosote after one treatment with solution of potash.
C^{24} $H^{14\frac{1}{2}}$ $O^{4\frac{1}{2}}$, the same after the second treatment.
C^{24} H^{14} O^{5}, Völckel's creosote.
C^{24} $H^{13\frac{1}{2}}$ $O^{5\frac{1}{2}}$ } wanting.
C^{24} H^{13} O^{6} }
C^{24} $H^{12\frac{1}{2}}$ $O^{6\frac{1}{2}}$, guaiacole.
C^{26} H^{18} O^{2}, carvacrole (Schweitzer.)

London Chem. Gaz., Feb. 1, 1856, from *Liebig's Annalen.*

ON CANTHARIDIN.

By Dr. Wittstein.

Preparation.—Coarsely powdered Spanish flies are digested in a sand bath for a day with four parts of water, strained through linen, pressed, and twice again digested with two parts of water; the strained liquid is allowed to settle for one day, the supernatant oil separated, and after adding wood charcoal one-tenth the weight of the insects, evaporated to dryness in a water bath. The dry mass is powdered and treated with sulphuric ether so long as the solution yields on evaporation a laminated

residue. This is effected most conveniently in a glass percolator of conical shape, the smaller end of which is closed with a piece of thick linen. The percolator is fitted with a cork into the neck of a bottle, the extract placed in it and treated with ether, which will yield a yellowish tincture. The wider upper end of the glass tube is loosely closed with a cork. The scales, after evaporation of the ether, are treated with cold alcohol of 80 per cent. for one day, frequently shaking; the alcohol is then poured off, the laminæ spread on blotting paper and dried in the air. One pound of Spanish flies yields from 20 to 30 grains of cantharidin.

Cantharadin may also be prepared by direct treatment of the Spanish flies with ether or alcohol, but I cannot recommend the method, as by it a quantity of fatty oil is extracted, the subsequent separation of which is difficult, and occasions a loss of cantharidin.

Recapitulation.—Cantharidin exists in the insect in an uncombined state; and owing to the extractive matter present, is taken up by water, in which menstruum, when pure, it is insoluble. To dry the watery extract readily, and obtain it in a fit state for exhaustion with alcohol, the charcoal is used. The ethereal extract will yield with alcohol a yellow (resinous) matter.

Properties.—Pure cantharidin forms white, glittering, odorless and tasteless scales. In water it is insoluble, and nearly so in cold alcohol, but readily in boiling alcohol; ether and fatty oils readily dissolve it in the cold. Heated, it melts and volatilizes in white vapors, which possess in a marked degree the stupifying odor of Spanish flies, and condense on cold substances.

Prac. Pharm. Chem.

NEW METHOD OF PREPARING CAFFEIN.

By M. Peccetti.

The modes of preparing caffein hitherto employed may be reduced, with slight modifications, to the action of acetate and oxide of lead upon the decoction of finely-powdered unroasted coffee. This fluid thus obtained, from which the caffein is allowed to crystallize, always contains a very large quantity of extractive matter, which, as it is very soluble in alcohol and

water, prevents the alkaloid from crystallizing, and thus renders it impossible to extract the whole of the caffeine from the coffee. The author, therefore, tried the following method. He brought the decoction of coffee to the consistence of an extract, and treated it with alcohol, which left undissolved a resinous substance of the appearance of bird-lime; he then dissolved a slight excess of pulverized caustic lime in the alcoholic fluid, which, when filtered and evaporated to the necessary degree, furnished crystallized, but still impure caffein. This was pressed between thick linen, to get rid of the adherent mother liquor, and then dissolved in well water and treated with animal charcoal, by which means the alkaloid was obtained in a very pure state. This mode of preparation gave one-twentieth of an ounce of caffein to every pound of coffee, or twice as much as by the ordinary process. As coffee is pulverized with difficulty, and does not contain very much of the bitter principle, the author substituted tea for coffee; tea being richer in caffein, furnishes this alkaloid with more facility and in greater quantity.

Although, by this treatment, tea furnishes a larger quantity of the product, it is certain that the action of the alcohol upon the extract of tea is attended with difficulty, on account of the very large quantity of insoluble matter which it leaves; this not only renders the process inconvenient, but may also lead to a diminution of the result, as indeed the author found to be the case. He therefore changed the mode of preparation in the following manner.

He exhausted the tea by decoction, mixed the fluids obtained, and concentrated them at first with a strong heat. When the fluid was somewhat thickened, he put it into a porcelain dish, and evaporated it by a gentle heat to the consistence of a thick extract. To this extract, whilst still warm, he added two oz. of finely-powdered commercial pearlash for every pound of tea; this was stirred in with a wooden spatula. The alkaline carbonate produced a strong effervescence; the mass swelled up, but returned to its original volume at the completion of the reaction. The dish was then removed from the fire, and its contents treated with alcohol; this may be effected in two ways. The alcohol may be added to the substance just taken from the fire, and stirred with a pestle of glass or earthenware, which may be

easily done, as the mass is always soft. Or the extract, treated with carbonate of potash, may be taken out of the dish and formed into thin cakes, which are brought to complete dryness on a furnace. In this way a blackish mass of resinous appearance is obtained; it possesses the odor of tea, and is easily powdered. The powder is passed through a hair-sieve and put into a flask with a ground stopper; alcohol is then poured into it, the flask is closed, kept in a warm place, and shaken from time to time, the alcohol being changed until it no longer exerts any action upon the extract. The alcoholic extracts are mixed together and distilled, and the fluid remaining in the retort is taken out and evaporated in a porcelain dish until it furnishes crystals on cooling. These are pressed between thick linen, dissolved again in well-water, and thus furnish a sufficiently pure thein, which may be obtained very white by treatment with animal charcoal.

The author has employed this process with both green and black tea. The green tea furnished only about half as much caffein as the black, which confirms the observations of Liebig and others. By the most careful treatment of different kinds of black tea, he obtained very variable quantities of the product, depending, of course, upon the differences in the quality of the tea. The following are his numerical results:

Tea employed.	Thein obtained.	Per cent.
4608 grms. green tea	38 grms.	0·82
3456 grms. common black tea	40 grms.	1·16
3312 grms. the same, another kind	30 grms.	0·90
1584 grms. congou tea	40 grms.	2·55

London Chem. Gaz., Feb. 1, 1856, from *Archiv. der Pharm.*

ON FUSED CYANIDE OF POTASSIUM.

By Dr. Wittstein.

Preparation.—Eight parts of yellow prussiate of potash are finely powdered, thoroughly dried with a gentle heat, intimately mixed with three parts of pure carbonate of potash, the mixture, thrown by spoonfuls into a red hot Hessian or iron crucible, allowed to remain in the fire until thoroughly fluid, and a glass rod or iron spatula dipped into it and withdrawn, becomes

covered with a clear liquid, which, on cooling, solidifies to a white (not at all yellow) mass. When this point is attained, the crucible is removed from the fire, over which it is held for a few minutes to allow the black particles swimming in it to subside the more readily; the clear liquid poured on a clean iron dish, broken into small pieces so soon as it has solidified, and kept in well closed vessels. The yield will be from 6 to 6¾ parts.

Recapitulation.—Ferrocyanide of potassium, deprived of its water of crystallization, consists of 2KCy+FeCy. By fusing this with an equivalent of carbonate of potash, the oxygen of half the potash combines with half the cyanogen of the cyanide of iron to cyanic acid, which, with the other half of the potash, forms cyanate of potash, = KO+CyO; the potassium liberated, with the other half of the cyanogen of the cyanide of iron, forms cyanide of potassium; the iron separates, in a metallic state, as grayish-black flakes, and the carbonic acid is evolved:

2 at. 2KCy+FeCy, and 2 at. KO+CO_2, form
5 at. KCy, 1 at. KO+CyO, 2 at Fe, and 2 at CO_2.

4610 parts of anhydrous, or 5285 parts of crystallized (containing three at. of water) ferrocyanide of potassium require 1730 parts of carbonate of potash, which nearly agree with the proportions given—eight and three parts. The above explanation of the process is not perfectly correct; for, instead of five at. of cyanide of potassium and one at. of cyanate of potash, I find that the salt has pretty constantly the formula, 7KCy+3(KO+CyO.)* The reason of it is most likely this, that the greater part of carbonic acid liberated becomes deprived of half its oxygen by a portion of the cyanide of potassium, and is consequently evolved as carbonic oxide. One and three-fifths parts of every two at. of carbonic acid are thus reduced; (to avoid fractions, we will suppose at first 25 at. KCy and five at. KO+CyO are formed, and 10 at. of carbonic acid, of which eight at. give up half their oxygen = eight at. to four at. cyanide of po-

* The portions of salt prepared at three different times gave, on precipitation with nitrate of silver, from 20 grains 26·4, 26 5, and 26·75 grains cyanide of silver, the mean = 26·55 grains. These 26 5 grains cyanide of silver correspond to 12·93 grains cyanide of potassium, consequently from 20 grains of the salt there remain 7·07 grains for cyanate of potash. The compound 7KCy+3(KO+CyO) consists in 20 parts of 13·04 KCy and 6·96 KO+CyO.

tassium to form four at. cyanate of potash and eight at. carbonic oxide:

8 at. CO_2 and 4 at. KCy, form
4 at. KO+CyO and 8 at. CO.

Of the 25 at. KCy there remain 21 at.; and to the five at. KO+CyO four more are added, making 21 at., KCy and nine at. KO+CyO, which stand in the relation to each other of seven to three. The oxygen of the air may also exert a partial oxidizing agency on the cyanide. Besides the products already mentioned, when the carbonate of potash or ferrocyanide of potassium is not thoroughly dry, ammonia is also formed and being evolved on fusing, is detected by its odor.

The mixture must be added to the crucible by small quantities at the time, to allow of its being covered by the fused portion, as all which adheres to the sides of the crucible above this does not form a pure product. It is necessary to take care that no particles of iron remain floating in the mass previous to pouring it out.

Eight parts of prussiate of potash and three parts of carbonate of potash should produce more than seven parts, but the yield is never so high as this, in consequence of a portion adhering to the crucible. To avoid wasting this, the crucible is well washed with cold water, filtered as quickly as possible, and the solution used to form other metallic cyanides, as cyanide of zinc, by adding to it a solution of sulphate of zinc, &c. It is seldom, however, that a solution of cyanide of potassium obtained in this manner is free from iron; as the particles of this metal in the crucible abstract, during the digestion with water, a portion of the cyanogen from the cyanide of potassium, and form with another portion of the latter ferrocyanide of potassium; the liberated potassium, by decomposing water and eliminating hydrogen, forming potash:

3 at. KCy 1 at. Fe, and 1 at. HO, form
1 at. 2KCy+FeCy, 1 at. KO, and 1 at. H.

Properties.—The preparation just described forms solid white lumps of a crystalline fracture, odorless, but possessing a strong alkaline taste like bitter almonds. In the air it deliquesces, evolving prussic acid and carbonate of ammonia, whilst carbonate

of potash forms the residue. The prussic acid which separates is from the cyanide of potassium, and the carbonate of ammonia from the decomposition of the cyanate of potash:

1 at. $KO+C_2NO$ and 3 at. HO, form
1 at. $KO+CO_2$ and 1 at. NH_3+CO_2.

In closed vessels the aqueous solution behaves like that of the pure cyanide, *i. e.*, it acquires a brown color and deposits a carbonaceous matter. Heated with dilute sulphuric acid it evolves hydrocyanic and carbonic acids, (consequently, when passed into lime water these gases cause a turbidness,) and the residue will consist of sulphate of potash and sulphate of ammonia:

1 at. $7KCy+3\ (KO+C_2NO)$ 13 at. SO_3 and 19 at. HO, form
10 at. $KO+SO_3$, 3 at. NH_4O+SO_3, 7 at. HCy, and 6 at. CO_2.

Black specks in the mass will be *metallic iron*, from want of care in pouring it from the crucible, in which case its solution will generally have a slight yellow tinge (contains ferrocyanide of potassium) and gives a similar reaction, with sulphate of copper as the previous preparation (when this is contaminated with iron.)

Prac. Pharm. Chemistry.

PREPARATION OF ALUMINIUM FROM CRYOLITE.

By Heinrich Rose.

Since the publication of Déville's method of extracting aluminium, I have endeavored to obtain the metal, by means of sodium, from the double chloride of aluminium and sodium; not, however, following exactly the directions of Déville, but heating these substances placed in alternate layers. The result was unsatisfactory. Rammelsberg, likewise, operating exactly in accordance with Déville's directions, obtained but a very inconsiderable product, and at the same time was seldom able to prevent the bursting of the glass tubes, in which the sodium vapor reacted upon the chloride of aluminium.

The use of chloride of aluminium and its compounds with the alkaline chlorides is particularly inconvenient, owing to their volatility and deliquescent character, which necessitate the exclusion of air during the reaction with sodium.

It therefore occurred to me to employ instead of chloride of aluminium, the fluoride of aluminium, or rather its compounds,

with the alkaline fluorides, one of which, the fluoride of aluminium and sodium, occurs native in a state of great purity as cryolite. This substance is not volatile; it may be reduced to fine powder with great ease, is anhydrous, and does not absorb moisture from the air.

By heating powdered cryolite mixed with potassium to bright redness in a small iron crucible, I succeeded in obtaining aluminium with greater ease than from chloride of aluminium or its compound with chloride of sodium. I was, however, prevented by the scarcity of the mineral from continuing the experiments, until a short time since, when I received from M. Krantz, of Bonn, a considerable quantity of it, and likewise ascertained that it was to be had in large quantities at a very small cost.

A sample of a white powder was given to me, large quantities of which were introduced into commerce from Greenland, under the name of "mineral soda," at a price of nine shillings a hundred-weight. It was used in the soap factories, where, by means of caustic lime, soda lye was extracted, which was peculiarly adapted for the production of certain kinds of soap, probably on account of its containing alumina. This powder proved to be cryolite.

Hitherto I have, in preparing aluminium, employed small iron crucibles $1\frac{3}{4}$ inch high and $1\frac{3}{8}$ inch diameter. The finely powdered cryolite was placed in layers with sodium, pressed down tightly, and covered with a thick layer of chloride of sodium.

I found chloride of potassium the most advantageous flux. It has a low density, and facilitates the fusion of the fluoride of sodium which is formed in the reaction.

The proportions were equal parts of chloride of potassium and cryolite, with two parts of sodium for five of cryolite.

The crucible was covered with a well-fitting porcelain lid, and exposed to strong red heat for half an hour. The contents were then perfectly fused. When cold, the melted mass was immersed in water; and generally there was no evolution of gas, or, at most, it was very slight; and in those instances the hydrogen had the same unpleasant odor as that evolved during the solution of cast-iron in hydrochloric acid, the carbon originating from the minute quantity of naphtha adhering to the sodium used.

The melted mass softens very slowly, owing to the slight solubility of fluoride of sodium. This is somewhat lessened by the chloride of potassium. After about twelve hours the mass was crushed in a porcelain mortar, and the globules of aluminium separated. Their weight was from 0.3 to 0.4 or 0.5 grm.

The smaller globules could not easily be separated by levigation from the undecomposed cryolite and the alumina, which was always formed, on account of the greater hardness of the substances. This portion of the mass was treated with cold dilute nitric acid, which, though it did not dissolve the alumina, left the globules of the aluminium with a brilliant surface. After drying, the globules were separated from the alumina and cryolite powder by rubbing upon muslin.

Owing to the formation of an almost imperceptible film of oxide, which is formed upon them when heated, the small globules of aluminium require to be melted with a flux, in order to obtain a mass. There is always some loss in melting aluminium with chloride of potassium. A globule of the metal, weighing 3.85 grm., lost in this way 0.05 grm. The chloride of potassium did not contain any aluminium when dissolved in water, but a small quantity remained undissolved. There is no doubt that a portion of the aluminium decomposed chloride of potassium, and that potassium and chloride of aluminium were volatilized, as is the case when copper and even silver are melted with chloride of potassium.

When the globules of aluminium were melted under the double chloride of aluminium and sodium, as recommended by Déville, the loss, if there is any, is very slight.

When the metal is melted under chloride of potassium, the surface is not perfectly even, but presents small indentations, which is not the case when it is melted under the double chloride of aluminium and sodium.

The best method of preparing double chloride of aluminium and sodium is to place a mixture of alumina and carbon in a glass tube of considerable diameter, within which is a narrower tube containing chloride of sodium, and, while passing a stream of chlorine through the largest tube, to apply a very strong heat to that part containing the alumina and carbon, and a less heat to the part containing chloride of sodium. The vapor of chloride

of aluminium thus formed is absorbed so readily by the chloride of sodium, that scarcely any is deposited at other parts of the apparatus.

Several modifications of the preparation of aluminium were tried, but the one described was found most advantageous.

When the sodium was placed at the bottom of the crucible, above it the cryolite powder, and then the chloride of potassium, much of the sodium escaped in vapor, which was not the case when the sodium was cut in thin slices and placed in layers with the cryolite.

After the crucible begins to be red-hot, it suddenly becomes intensely so when decomposition takes place. The heat must not be lessened then, but maintained for half an hour only. If continued for a longer time, the reaction of chloride of potassium upon the aluminium would cause loss. Neither were the globules of aluminium larger when the heat was maintained for two hours. That is the case only when a very intense heat is employed.

When the heat is discontinued after five or ten minutes the yield of aluminium is remarkably small, because the metal is then pulverulent, and burns while the crucible cools.

No larger product was obtained when the cryolite powder was mixed with an equal quantity of chloride of potassium, or when the layers of sodium and cryolite were covered with double chloride of aluminium and sodium.

The use of chloride of sodium as a flux necessitates a higher temperature, but the result is not sensibly different.

The yield of aluminium, obtained when the operation was conducted in the manner described, was very variable. It never amounted to the whole of the metal in the cryolite used. This substance contains only 13 per cent. of aluminium. The largest quantity obtained from 10 grms. of cryolite was 0.8 grm., frequently only 0.3 grm.; and less was obtained, instead of the 1.3, which, by calculation, it ought to yield, if the reduction was complete.

The most important condition to which these variations must be ascribed is the temperature. The higher it is, the more does the aluminium aggregate into globules. I once succeeded in obtaining almost the whole of the reduced aluminium in one button, weighing 0.5 grm.

There is also great loss of aluminium caused by the slow cooling of the melted mass and the burning of the pulverulent metal. In order to obviate this, another mode of preparation was adopted. The cryolite (20 grm.) was ignited strongly in a gun-barrel, through which was passed a stream of hydrogen, and then the vapor of 8 grm. of sodium. The contents of the tube were cooled in an atmosphere of hydrogen, and when digested with water, to dissolve the fluoride of sodium, left a quantity of a black powder consisting chiefly of iron.

The small product obtained in these experiments should not deter others from further attempts to prepare aluminium from cryolite. This substance can now be obtained at such a low price, and sodium is likely to be obtained so cheap, as to render desirable the search for a method that will ensure an adequate product. Moreover, I am of opinion that cryolite is better adapted for the preparation of aluminium than any compound of this metal.

Aluminium has not yet been obtained with certainty direct from alumina. Potassium and sodium appear to effect the reduction of metallic oxides only when the potash or soda produced can combine with the unreduced oxides. Pure potash or soda, the characters of which are as good as unknown, do not appear to be formed. Now, as alumina combines readily with the alkalies forming aluminates, there is reason to believe that the reduction might be effected by the alkaline metals.

Even if this should prove to be the case, cryolite would in all probability be for a long time the more available source of aluminium, unless it increased very much in price. This mineral occurs in a state of singular purity, and contains, besides aluminium, only fluorine and sodium, substances which do not interfere with the preparation of the metal. Alumina, on the contrary, is rarely found pure, and its separation on a large scale, from substances that would be prejudicial to the production of the metal, would be attended with great difficulties.

The globules of aluminium that I have obtained are for the most part so malleable, that they may be flattened out and rolled into foil without rending at the edges. They have a strong metallic lustre. Some pieces, on the contrary, which were found at the bottom of the crucible, sometimes firmly attached to it and not globular, rent at the sides when flattened. They also differ somewhat in color and lustre. They are evidently not so

pure as the majority of the globules, and probably contain some iron.

A large globule of aluminium, weighing 3.8 grm., appeared when cut through to be distinctly brittle, for about half a line from the exterior, while the inner part was soft and malleable. Sometimes there were cavities inside the globules.

Déville has obtained aluminium in a crystalline state, and I have likewise observed this in some instances. One large globule had quite a radiated crystalline structure at the part which was lowest during the cooling. Déville is of opinion that he has obtained octohedrons; but, according to the examination of my brother, the crystalline structure does not appear to be that of the regular system.

In an attempt to melt, without any flux, a somewhat impure globule of aluminium which had been flattened, small globules were protruded from the surface. The impure metal being least fusible, the pure metal mixed with it melts, expands, and is forced out of the mass, as is the case with impure bismuth.

I have already remarked that cryolite is used in Berlin, under the name of "mineral soda," for the preparation of caustic soda lye. Powdered cryolite is perfectly decomposed when heated with caustic lime and water at the boiling point. The fluoride of calcium produced does not retain any aluminium, the whole of which is dissolved as alumina by the soda, which, on the other hand, is free from fluorine, or contains only very minute traces of it.—*Lond. Pharm. Jour., Feb.* 1856, from *Annalen der Physik und Chemie.*

PIPITZAHOIC ACID.

Pipitzahoic Acid is the name given to a substance recently extracted by M. Rio de la Loza, Professor of Chemistry, of Mexico, from a root known in some parts of the Mexican republic as *Raiz del Pipitzahoac.** This root, specimens of which, together

*The learned body in Mexico to whom the first account of this substance was submitted changed the name of the acid, in honor of its discoverer, from *Pipitzahoic* to *Riolozic.* As the former name is more in accordance with established custom, and as we find the acid described in Germany under that designation, we prefer it (barbarous though it is) to that proposed by the Mexican *savans.*

with the acid, were in the Paris Exhibition, is the produce of a compositous plant, probably, we are informed, of the genus *Trixis*. It is used in its native co ıntry as a drastic purgative, in the somewhat large dose of two or three drachms. The acid is likewise purgative in a dose of from six to twelve grains.

The methods employed by M. de la Loza for the separation of the acid are sufficiently simple. The first is *by sublimation:* a quantity of the root in powder is mixed with an equal volume of sand and cautiously heated to a temperature not exceeding 176°F. The acid sublimes, and may be collected in the upper part of the vessel. A second method consists in pouring an alcoholic tincture of the root into water, when pipitzahoic acid (impure, we presume) is precipitated. A third process is that of allowing the alcoholic tincture to evaporate spontaneously, when the acid will crystallize out.*

Pipitzahoic acid has been investigated in the laboratory of Professor Liebig by Mr. Mason C. Weld.† This chemist describes the pure acid as readily soluble in absolute alcohol and in ether, from which it is precipitated upon the addition of water, in voluminous yellow masses. Upon evaporation of the alcoholic solution, the acid is found crystallized in tufts of lamellar crystals. Crystallized from ether, it forms small, shining, obliquely-rhombic tables. The acid has a golden-yellow color, and is unchanged by exposure to the air. At about 212° F. it fuses, forming a red liquid, which, upon cooling, solidifies in a crystalline form: at a little over 212°, it sublimes unchanged, condensing in the form of golden-yellow scales.

Pipitzahoic acid, according to Mr. Weld, has a composition of $C_{30}\ H_{20}\ O_6$. Caustic and carbonated alkalies and the alkaline earths give, with solutions of the acid, an intense purple color. The salts of the alkalies possess this characteristic color; they are easily soluble in water, alcohol, or ether. Combinations of the oxides of copper, silver and lead, with pipitzahoic acid have also been obtained.

The acid, it is thought, may be useful as a dye, and also as a chemical test for alkalies.—*Lond. Pharm. Jour. Feb.* 1856.

* *Catalogue des Produits Naturels, Industriels, &c., exposés dans la Section Mexicaine à l'Exposition Universelle de* 1855. Paris: 1855. Page 51.

†*Annalen der Chemie und Pharmacie,* August, 1855, p. 188.

POISONING BY STRYCHNIA—TREATED WITH OLIVE OIL.

By S. A. Gus. Shaw, M. D.

March 7, 1852, I was called to see a negro woman belonging to R. M. Hannay, of Rock Island, Texas; found her, on my arrival, about six o'clock in the evening, in convulsions, with slight rigidity; she was very sensible to external impressions, the contact of the cup to the lips being sufficient to produce a paroxysm requiring four negro men to confine her to the bed, lasting two or three minutes; the paroxysms occurred every five minutes when she was left perfectly quiet. The least movement or touch was sufficient to renew them immediately. The pulse unchanged; inspiration deep; anxiety; heat of the stomach, and a choking sensation in the throat. I had administered strychnia a few days before in a case of paralysis of the arm, and was struck with the analogy of the contractions with the effect produced by that article. I administered a half bottle of sweet oil, which she vomited; repeated it immediately, which she retained five minutes, and vomited; repeated again, which she retained, perhaps, ten or fifteen minutes, and again vomited. On stepping out of the cabin, I found three dogs in the same condition, which was immediately accounted for, as they had lapped up the oil vomited by the girl. By this time the girl could speak without bringing on the paroxysm, and informed us that, about four o'clock, she had found a piece of dried beef in the cabin, which she tasted of, and finding it extremely bitter, gave it to her children. I immediately stepped to the crib where they lay, and found one of two years in the same condition in which the mother had been. I gave the oil which had operated so happily, and had the pleasure of finding them out of danger at about twelve o'clock, and returned home. The woman was in the field at work next morning at ten o'clock A. M. When I paid my visit during the evening, she had a slight paroxysm in the field, and was again treated with the oil, and completely relieved. No bad effect was produced. No change, except an increase of appetite, could be perceived. Both recovered. The three dogs died before I left, at twelve o'clock. A fourth dog was taken, and saved by the oil. The facts in the case were these: Mr. Hannay had set baits for wolves during the winter,

which troubled him, and this dried beef was one of them, and contained not less than ten or fifteen grains of sulphate of strychnia. It must have been in the stomach one hour before she was known to be sick. Mr. Hannay gave her a dose of oil (castor) at once, which no doubt protected the stomach and prevented the absorption of the poison in a dangerous quantity, until my arrival. The negro woman took, in all, 3¼ bottles olive oil; the child nearly 1 bottle.—*Amer. Jour. of the Med. Sciences.*

Tausté Point, St. Martin's, La., June 6, 1854.

ON CRYSTALLIZED ACETATE OF MAGNESIA.

By Karl von Hauer.

Acetate of magnesia is mentioned in all the text-books of chemistry as a salt which is crystallizable only with great difficulty; and when its aqueous solution is evaporated, generally remains in the form of a bitter, sticky, and deliquescent gum. In the dehydrated state, according to the analyses of Wenzel and Richter, its constitution is $C^4 H^3 MgO^4$. According to Connell, it is distinguished from formiate of magnesia by its incapability of crystallization and its deliquescence.

The author prepared this salt by dissolving caustic magnesia in acetic acid. If the aqueous solution thus obtained be evaporated, it will become concentrated until it attains the consistence of a syrup, and will at last become dry, without presenting any formation of crystals. This is the case even when the evaporation is effected by a moderate heat. But if the concentrated solution of the salt be left to evaporate spontaneously at the ordinary temperature of a room, it generally acquires a crystalline film on the surface, which gradually becomes very solid, and so close that it to a certaint extent hermetically seals the solution, and consequently prevents its further evaporation. It is but rarely that crystallization commences at the bottom of the vessels, and the surface of the fluid remains alway free, but under these circumstances the largest crystals are obtained. This mode of preparation, however, depends almost entirely upon chance. The author therefore tried concentrating the solution of the salt very strongly by heat, and then letting it cool as slowly as possible. In this way he always succeeded in obtaining crystals

of considerable size, especially when a large volume of fluid was employed, this greatly facilitating the slow cooling. The formation of crystals takes places in this case with acid, as well as with more neutral solutions. The author did not succeed in adding to the size of ready-formed crystals, because when these were placed in freshly-concentrated solutions they became crusted with a new formation of small crystals, without increasing in their original form. Solutions containing an excess of acid furnished more distinctly-developed crystals, with bright shining surfaces; those formed in more neutral solutions are larger, but generally less transparent. The salt obtained is not so very deliquescent as is generally supposed. At the ordinary temperature of a room the crystals may be readily dried on blotting-paper, and they exhibit no alteration even when kept for months. In closed vessels they may be kept with still less danger of deliquescing. The composition of the salt was found to agree with the formula $C^4 H^3 MgO^4 + 4HO$. Its analysis gave 18.73 and 18.75 per cent. of magnesia, which was determined by the calcination of the salt.

For the purpose of this analysis, the salt was dried at the ordinary temperature of the room. An analysis of crystals which had already been kept for some months gave the same results. When dried over sulphuric acid, the salt effloresced. When heated on the water-bath, it lost its 4 atoms of water of crystallization almost entirely; but this required a considerable time. The loss of weight, whilst drying at 212° F., took place as follows:—

1.115	grm.	weighed after	4	hours	0.907	grm.	=18.65	per cent. loss.
...	...		9	...	0.837	...	=24.93	...
...	...		15	...	0.783	..	=29.77	...
...	...		19	...	0.766	...	=31.30	...
...	...		24	...	0.750	...	=32.73	..

It appears also that when this heat is so long continued, a certain, although very small quantity of acetic acid is expelled with the water, for when the salt dried in this manner was dissolved in water, it left a small residue. When more strongly heated, it behaved like the other acetates, first losing its water and swelling up strongly, evolving acetic acid and afterwards acetone, and finally smouldering away when heated to redness. Its crystals belong to the monoclinohedric system.—*Chem. Gaz. from Jahrb. der K. K. Geolog. Reichsanstalt.*

NOTE ON THE PREPARATION OF URANIUM.

By E. Peligot.

In 1842 the author showed, that by treating protochloride of uranium with potassium, uranium was obtained partly in the form of a black powder, and partly in silvery metallic plates; but as the sudden elevation of temperature produced by the reaction prevented the employment of earthen crucibles, and rendered the use of platinum vessels necessary, the metallic scales were always alloyed with platinum.

Since sodium has been so easily procurable, the author has renewed his experiments, substituting sodium for potassium. He proceeds, in the following manner:

The quantity of sodium necessary to decompose the green protochloride of uranium (prepared by submitting one of the oxides of this metal to the simultaneous action of chlorine and charcoal) is put into a glazed porcelain crucible. The sodium is covered with very dry chloride of potassium, and then with a mixture of the latter salt and chloride of uranium. The crucible, closed with its lid, is placed in a luted earthen crucible, which is filled with charcoal-powder, and also closed with an earthen cover. The object of the addition of chloride of potassium is to render the reaction less instantaneous and violent.

The crucible is heated until the reaction takes place, which is known by the sound produced at that moment; it is then immediately removed into a blast-furnace, and kept at a white heat for a quarter of an hour or twenty minutes; on cooling it, a fused cinder is found in the porcelain crucible, and this encloses several globules of uranium.

Thus prepared, uranium possesses a certain degree of malleability; it is hard, but may easily be scratched with steel; and its color resembles that of nickel or iron. In the air it acquires a slight yellowish tint, in consequence of a slight oxidation of the surface. When heated to redness, it exhibits a brilliant incandescence, and becomes covered with a voluminous black oxide, in the interior of which a portion of the metal is found unchanged if the action of heat has been stopped in time. Its density is 18.4, so that next to platinum and gold it is the heaviest body with which we are acquainted. This specific gravity may per-

haps justify the high equivalent which the author has attributed to this metal.

The author has also ascertained that uranium may also be obtained from the same green chloride by means of aluminium. Its isolation by this reaction is no doubt due to the great volatility of the chloride of aluminium.—*Ibid, from Comptes Rendus*, Jan. 21, 1856.

ON SWEET SPIRIT OF NITRE.

By D. R. Brown, of Edinburgh.

It appears that sweet spirit of nitre was known so early as the 13th century. It is at least something in its favor, that after six hundred years it still maintains its ground, and is in very general use.

An immense number of formulæ have been given for its preparation; but, however prepared, it consists essentially of impure hyponitrous ether and rectified spirit, in variable proportions; and these proportions vary from twenty per cent. of the ether down to one or even less. These variations are not indeed permitted by the Colleges of London, Edinburgh, or Dublin, each having for itself a formula for the preparation, and also a standard strength; yet each College differs from all the others. The Edinburgh formula gives a preparation containing 20 per cent. of hyponitrous ether, while that of the Dublin is only 8.70 per cent. With respect to the London formula it is difficult to say what its per-centage may be. The most extravagant calculation will afford no more than 16.43 per cent., while the reality is undoubtedly much below this amount. We have examined samples of what was termed "the best," and been unable by fractional distillation to find more than a mere trace; among these were samples from London. It is upon the presence of the ether that the virtues of the sweet spirit of nitre depend. It is surely a sad condition of affairs when a prescription, written and prepared in London or Dublin, shall, when taken to Edinburgh, have the dose increased to two doses and a half; or, that when written in Edinburgh and prepared in London or Dublin, the dose should go down to less than one-half. But more sad still, that, the dose being either 20, 10, or 8.70 per cent. of the

ether ordered, it should in reality contain only one per cent. It is surely time that variations in medicinal preparations were done away with—over the earth if possible—but at all events, at home; and more especially such variations as have been pointed out. We have long felt the necessity of calling the attention of the Society to this preparation. The permission by the Government to employ methylated spirit in manufactures gives us the opportunity.

All the formulæ, however numerous, given for the preparation of Sp. Eth. Nit., arrange themselves under one or other of three modes, having for their result a mixture of hyponitrous ether and strong alcohol, and are but modifications of one and the same process—namely, the production of hyponitrous acid by the action of nitric acid upon an excess of alcohol. NO_5 is made to act upon alcohol indirectly or directly. Either the NO_5 is eliminated from a salt containing it while in contact with strong alcohol, or the acid first freed from combination is added to the alcohol. The third mode is, first, the preparation of hyponitrous ether, and then its solution in rectified spirit. The second of these modes is that followed by the London Pharmacopœia, and the third, that by the Edinburgh and Dublin.

The action of NO_5 upon alcohol ought to receive an investigation such as, so far as we know, it has not hitherto met with; for although the number of products formed and separated are numerous, yet the precise conditions which give origin to these are not sufficiently defined; a few degrees more or less of heat, or an acid more or less strong, modify the results. But we confess the investigation to be most difficult. What we have to do with at present is the result of the action of NO_5 upon rectified spirit, as it offers itself to us in the preparation of the Sp. Eth. Nit. of the Pharmacopœias. The products of that action divide themselves into three groups, one of which passes off in the state of gases; another abides in the flask or retort; and the third, that with which we have to deal, passes over into the receiver. According to the London formula, we will have in the receiver a finished product, requiring no more to be done to it, consisting of a solution of impure hyponitrous ether, containing aldehyde, in a very strong rectified spirit. By the Edinburgh and Dublin formulæ we have a product which has yet to undergo

purification, and afterwards to be mixed with its proper proportion of rectified spirit. But that purification does not give a chemically pure $AeO+NO_3$; it also contains aldehyde. The product by the formulæ of all the Colleges is then alike in this —they all contain $AeO+NO_3$, alcohol, and aldehyde, or the hydrated oxide of acetyle ($C_4 H_3 O+HO$).

Pure hyponitrous ether—or, in chemical language, the hyponitrite of the oxide of ethyle ($C_4 H_5 O+NO_3$), would require to be somewhat better known than it is.

Liebig as quoted in Turner, gives its density at 60° as 947 and boiling point 62°				
Prof. Christison, that prepared by the Edinburgh process	"	"	899	" 70°
Meissner, as quoted by Prof. Christison	"	"	909	no boiling point
The late Dr. Pereira	"	40°	886	boiling point 70°
Dumas	"	"	886	no boiling point
Regnault	"	No temp.	886	boiling point 69°.8

He also says that "pure nitrous ether is colorless;" of this we have met with no specimen.

Mitscherlich gives it also as "colorless"	density at	40° as	886	and boiling point 80°
The Dublin Pharm.	"	60°	900	no boiling point
The late Prof. Duncan, of Edinburgh, states that when simply washed with HO, its	"	No temp.	912	no boiling point
And after removing acid by KO	"	"	896	"
And when re-distilled	"	"	866	"
We have thrice prepared it by Leibig's method, and the product was	"	60°	900	boil. point 62°—64°

It is quite manifest that the densities and boiling points given cannot belong to one and the same fluid; nor can it be seen how the admixture of aldehyde of D. 790 at 65° and boiling at 70° can reconcile them. May it not be that $AeO+NO_5$ is formed, in some cases, as well as $AeO+NO_3$? Both its D. (1.112) and B. p. (185°) are high.

We have very often prepared the $AeO+NO_3$ of the Edinburgh Ph., and have frequently been unable to bring up the D. to 899 by solution of Ca+Cl or washing. Weak solution of ammonia, however, we find to answer the purpose, and we are no longer annoyed by a density ranging from 886 upwards; from 899—900 is now easily arrived at.

It may be instructive to state the result of the re-distillation of the product got by Leibig's method. When procured, its boiling point was 62—64, and D. 900 at 60°. On re-distilling it, one-half had come over, and the thermometer stood at 66°;

the D. of this first portion was 899—900 at 60°, and its B. p. 62°—64°. The temperature quickly rose in the distilling flask to 70°—72°, and a considerable quantity came over, the D. and B. p. of which were precisely the same as the first portion. The last portion came over between 72°—80°. Its D. was 900 at 58°, and its B. p. 62°—64°. Yellow vapors appeared in the distilling flask, and the small quantity of fluid left was strongly acid. Contrary to the indications of the thermometer, we find but one fluid partially decomposed in boiling.

In order to compare the formulæ of the different Pharmacopœias, and to do so fairly, the alcohol and NO_5 made use of by each has been reduced by calculation to dry alcohol and dry NO_5, taking for data for these calculations the table of Gay Lussac, as given in Prof. Christison's *Dispensatory*, for the alcohol, and Ure's table for NO_5 in Turner. The products also have been dealt with in the same way, and the loss of alcohol in each process found.

The following short tables will best tell their own story:—

	MATERIALS USED.		THE PRODUCT CONTAINS	
	Dry Alcohol.	Dry NO_5	Dry Alcohol.	$AeO+NO_3$
London	28·143	2·982	17·356	4·140
Edinburgh	32 547	8 368	21·93	6·975
Dublin	33·771	3·586	29·54	3·600

Of dry alcohol, allowing for the hyponitrous ether, the loss in each process is:

London	28·143	less	found in product	19·895	= Loss	8·248
Edinburgh	32·547	"	"	26·208	= "	6 339
Dublin	33·771	"	"	31·757	= "	2·014

The per centage loss is—London, 29·3; Edinburgh, 19·47; Dublin, 5·96. Taking the strongest—the Edinburgh—as the standard 28·905 = 6·975 of $AeO+NO_3$, then 5·58 instead of 4·140 ought to be contained in the London, and 7·09 instead of 3·6 in the Dublin.

The above numbers refer to weight and to dry alcohol and dry $AeO+NO_3$; but we have to deal with the bulk and with water therein, when Sp. Eth. Nit. is dispensed.

The bulk product of the

London is	28	fluid ounce,	containing	4·60	of dry $AeO+NO_3$.
Edinburgh	38·75	"	"	7·75	"
Dublin	46·00	"	"	4·00	"

and the medicinal value of these is by bulk—London, 16·43;

Dublin, 8·7; and Edinburgh, 20 per cent. of $AeO+NO_3$. Difference of density, which would make a slight alteration, has not been taken into account here, and with regard to these calculations, there can be no doubt as to the Edinburgh and Dublin results. The London, however, have gone on the extravagant supposition that the whole NO_5 is converted into NO_3, and united with its equivalent of AeO, which is most unquestionably not the case. They are also based upon the supposition that the alcohol in the London product is of sp. gr. ·825. The impossibility of finding any indisputable data rendered these necessary.

Without doubt the Edinburgh process, as modified by the Dublin College, is the best.* It is the easiest, the safest and most productive; and it possesses this prime qualification—its results are defined and definite. There is no dubiety as to the quality or strength of the product. Its composition is fixed, and it can only vary by internal change or intentional admixture. It undergoes both of these, the first rendering the second absolutely necessary. The sp. eth. nit. of the Edinburgh Pharmacopœia changes very rapidly. In a very few days after its preparation, a large amount of free acid is found to exist in it, which goes on increasing; and its removal must be accomplished before the sweet nitre can be dispensed, unless all parties are regardless of the chemical constitution of what is prescribed. As an instance, let us suppose a very common case. That a prescription contains iodide of potassium and sweet spirit of nitre. If it is made up with the sweet spirit of nitre, almost universally found in use; no change, or a very small one, will take place upon the chemical constitution of the KI; but if made up with Sp. Eth. Nit. of the Edinburgh Pharmacopœia, which has been made but a short time—a week perhaps—then, instead of KI and a colorless fluid, we will have a deep brown liquid, containing $KO+NO_5$ and free iodine. But the Edinburgh preparation is not singular in undergoing this change. It takes place more or less in every sample we have met with, and, so far as we can

* The NO_5 ordered by the Edinburgh Pharmacopœia, is of D. 1500, which is an objection of more force than at first sight appears; for a pure acid of that D. is scarcely to be found in the market. Dr. D. Maclagen, however, has shown, what is practically valuable, than an increased quantity of a weaker acid will answer the purpose perfectly.

judge, just in proportion to the amount of $AeO+NO_3$ in the preparation. The weaker it is, the better it keeps. Less acid is found in the fluid, just because less existed in it. It is to this proneness to change that we ascribe the almost universal departure from authority, both as to *modus operandi* and per centage of ether, which has taken place. The Pharmaceutical Chemist *cannot make* sweet spirit of nitre in drachms or half ounces every time he dispenses a prescription containing it. He must make or buy an article that will retain its properties for at least a reasonable time; and the manufacturing chemist cannot sell an article which spoils in a day or two, for no one will have it from him. Thus, both are compelled to hunt about for better processes, and not finding them, either to give up making or selling, as the case may be. Or else the Pharmaceutical Chemist buys and uses whatever is offered to him, asking no questions. We have met with no specimen which contained the full amount of $AeO+NO_3$, but we have met with it where it held internal evidence that at one time it had contained all it ought. And we have found in our own experience that, after some weeks, a sweet nitre, originally made according to the Edinburgh Pharmacopœia, with 20 per cent. of $AeO+NO_3$, was deficient to a considerable extent, eight per cent. having disappeared.

The change which occurs in sweet spirit of nitre has been long known, and many endeavors have been made to prepare it without this liability. Some, indeed, deny that this liability is inherent in the preparation, and among others, the late esteemed Pereira mentioned that he had some which had been in his possession for years, "and which possessed only slight acidity." It is to be regretted that the formulæ and original strength of these keeping sweet spirits of nitre are not given. It is also asserted that sweet spirit of nitre made with $AeO+NO_3$, made according to Liebig's process, keeps better than that made by the ordinary process. So far as our experience goes, this last assertion is true; but the only vehicle we have found which will give a stable mixture is absolute alcohol—confirming Professor Christison's observations. It is obvious that the price of sweet spirit of nitre made with $AeO+No_3$, procured by Liebig's process, would tend to render its use very limited indeed. But whether it would or no, are we at liberty to follow that mode?

We think not. We have already said that the product of the formulæ of all the colleges contain with $AeO+NO_3$, and rectified spirit, aldehyde, or the hydrated oxide of acetyle, (C_4H_3O+HO.) It is known to be contained in the spirit of nitre of the Pharmacopœia. Are we then at liberty to remove that which, though undoubtedly an impurity in $AeO+NO_3$, is yet an integral part of sweet spirit of nitre? There is some reason to believe that the presence of the aldehyde is the cause of the decomposition of Sp. Eth. Nit., but it may be, for aught we know, upon the presence of the aldehyde that some of the medicinal value of that preparation depends, and thus the question remains; will its removal, while it improves the keeping qualities, not destroy its medicinal value?

With regard to the use of absolute alcohol as the solvent of the ether, there does not appear to be any other good objection than the difficulty and expense of procuring it; and that is, though not insurmountable, yet a very serious objection.

But are these changes indeed absolutely necessary? A much weaker preparation has been in almost universal use for many years past, and not many complaints have been heard against it. The Edinburgh process is perfect in its details with, we think, one exception, namely, the use of milk of lime to neutralize the impure $AeO+NO_3$, sol. of ammonia, ordered by the Dublin formulæ, as already mentioned, having been found to answer better. But the proportion of $AeO+NO_3$ is too great to give a fluid that will keep. In fine, we believe that, where the standard of all the colleges made 10 per cent., all the difficulties would be overcome. Such a preparation would keep a reasonable time, and be produced at a moderate price. It would give a spirit which would answer every purpose, and leave without an excuse any attempt at the production of a weaker, which will not be the case so long as conditions are laid upon the manufacturer which he finds it impossible to fulfil. The present formula tells him to make and mix 20 per cent. of hyponitrous ether with 80 per cent. of rectified spirit; it is so clear and excellent in its directions that neither doubt nor difficulty meets the operator—he can most easily comply with the demands of the formula. But he has those who supply the public to meet with, and they demand from him, and not unreasonably, that he shall supply

them with a spirit of nitre which will hold its integrity for a longer time than a week or ten days; and he can comply with this demand also. But he cannot conjoin the demands of the formula and the consumer—one or other must give way. It is surely bad policy to give the wrong-doer a good excuse for his malpractices. As it is at present, no honest manufacturer can advantageously enter into its preparation, for no one will make use of the genuine production. We have never been able to prepare a sweet spirit of nitre with 20 per cent. of the $AeO+NO_3$ of the Edinburgh Pharmacopœia that did not begin to decompose within a day, and when sent out our friends have found it, both in respect of strength and free acid, so totally unlike anything they had hitherto met with, that they refused to have anything to do with it.

Before leaving the spirit of nitre of the Edinburgh Pharmacopœia, we may say that, while the tests given for its purity are perfectly accurate, they must be applied with a caution that the D. ·847 may be given by the addition of water, and that the solution of CaCl be such as to contain about 40 per cent. of dry CaCl. It is to be observed, also, that the tests given are only applicable to a very recently prepared spirit. A sample made according to the Edinburgh Pharmacopœia, on Jan. 7th, of D. ·847, and which separated by half its bulk of solution of CaCl, containing 40 per cent. of dry CaCl, 12 per cent. of $AeO+NO_3$, was tested on Jan. 17 with solution of CaCl of different strengths. The following are the results:

Sol. CaCl	containing	20	per cent.	dry CaCl,	sepd. of $AeO+NO_3$,	8·9 per cent.
"	"	30	"	"	11.	"
"	"	40	"	"	11.5	"
"	"	50	"	"	10.	"
"	"	60	"	"	8. after two hours in a second experiment, 9 per cent.	

It has already been said that the examination of some specimens marked "the best," from London, gave scarcely a trace of $AeO+NO_3$. This ought not to be ascribed to adulteration, for experiment has shown us that it is not only possible, but really the fact, that nearly the whole product may be drawn over before the production of AeO_3+NO_3 commences. The late Dr. Golding Bird, many years ago, made some investigations into the nature of the products left in the retort after the preparation of

spirit of nitre by the formula of the London Pharmacopœia. That which we would call your attention to in his results is the very large amount of hyponitrous ether found by him in that residue. He has not given the quantity found, but we are much mistaken if he does not give data for saying that by far the largest portion of the ether was left to be thrown away. This we suspect is the case still. In one experiment, where 14 fluid ounces were ordered to be drawn over, as being the amount of the product, nearly the whole came over before a trace of hyponitrous ether made its appearance.

We will give the details of an experiment made on Jan. 21st, 1856:—40 fluid ounces of alcohol, of D. 838, were mixed with 3½ fluid ounces of pure NO_5, of D. 1420 or thereby, (it was found to be 1415 at 71°,) and distilled. The quantity ordered to be distilled over is 28 fluid ounces. It boiled at 176°—178°, and when the temperature had reached 182°, 21 fluid ounces had come over into the receiver. The D. of this portion was .834, and was alcohol without the very slightest taste or smell of nitrous ether. The next portion came over below 184°; it measured 3 fluid ounces, and its D. was .837, and in other respects altogether like the first. The third portion measured about 4 fluid ounces; its D. was ·840, and was not perceptibly different from fine spirit. The temperature had now reached 188°. The fourth portion measured 3 fluid ounces; its D. ·845, and it was merely flavored with Sp. Eth. Nit. The temperature was now 192°. The fifth portion was 1½ fluid ounces of D. ·854, tasting distinctly of sweet nitre. Up till this period no other action could be perceived than ebullition. There was no escape of gas through the receiver. When, however, those 32½ fluid ounces, or thereabout, had been distilled off, action began, the thermometer falling from 192° to 182°; action was vigorous to 180°, where it remained for a short time, and on removing the gas-burner it fell gradually to 168°, and all action was nearly at an end. The last portion amounted to 8½ fluid ounces; its D. was 890; and when treated with half its bulk of solution of CaCl, containing 40 per cent. of dry CaCl, it separated 46 per cent. of ether, whether the $AeO+NO_3$ of the Edinburgh Pharmacopœia was not examined into. The first, second and third portions were mixed together, and gave faint indications of aldehyde, as did the fourth. With the

fifth, alcoholic solution of KO gave distinct coloration; and with the sixth, the color was deep. We think this experiment bears out the remark that nearly the whole product may come over without a particle of $AeO+NO_3$.—*London Pharm. Journ.*

NOTE ON THE DETECTION OF STRYCHNIA.

By Marshal Hall, M. D., etc.

The detection of strychnia as a poison is, at this moment, of deep public interest.

When the *chemical* test fails, there remains, I think, another—the *physiological*. Having long studied the effects of strychnia on the animal economy (I have sent two papers on this subject to the Institute of France), I am persuaded that these effects on the *most excitable* of the animal species are at once the most delicate and specific tests of this poison.

I have just performed two experiments, and only two, for want of materials for more.

I requested Mr. Lloyd Bullock, of Hanover Street, to dissolve one part of the acetate of strychnia in one thousand parts of distilled water, adding a drop or two of acetic acid.

I then took a frog, and having added to one ounce of water one one-hundreth part of a grain of the acetate of strychnia, placed the frog in this dilute solution. No effect having been produced, one one-hundreth of a grain of the acetate was carefully added. This having produced no effect, in another hour one one-hundredth of a grain of the acetate was again added, making the three one-hundredths, or about the thirty-third part of a grain. In a few minutes the frog became violently tetanic, and though taken out and washed, died in the course of the night.

I thus detected, in the most indubitable manner, one thirty-third part of a grain of the acetate of strychnia. It appeared to me that had more time been given to the experiment, a much minuter quantity would be detectible.

I placed the second frog in one ounce of distilled water, to which I had added the one two-hundreth part of a grain of the acetate of strychnia. At the end of the first, the second, and

the third hours, other similar additions were made, no symptoms of strychnism having appeared. At the end of the fifth hour, the frog having been exposed to the action of one-fiftieth part of a grain of the acetate of strychnia, tetanus came on, and under the same circumstances of removal and washing, as in the former experiment, proved fatal in its turn.

I thus detected one-fiftieth part of a grain of the poisonous salt by phenomena too vivid to admit of a moment's doubt, the animal, on the slightest touch, became seized with the most general spasmodic, or, rather, tetanoid rigidity. And this phenomenon, alternating with perfect relaxation, was repeated again and again.

As the nerve and muscles of the frog's leg, properly prepared, have been very aptly designated as galvanoscopic, so the whole frog, properly employed, becomes strychnoscopic.

In cases of suspected poison from strychnia, the contents of the stomach and intestines, and the contents of the heart, blood-vessels, &c., must be severally and carefully evaporated, and made to act on lively frogs, just taken from the ponds or mud. I need scarcely say, that taken in winter the frog will prove more strychnoscopic than in summer, in the early morning than in the evening.

The *best* mode of performing the experiment also remains to be discovered, with all its details and precautions—an inquiry into which I propose to enter shortly. Meantime this note may not be without its utility.

Princes Street, Hanover Square, January, 1856.

POSTSCRIPT.—I have repeated my experiment. I placed one frog, fresh from the pools, in an ounce of water, containing the one-fiftieth part of a grain of the acetate of strychnia; a second in the same quantity of water, containing the one-sixty-sixth, a third containing one-one-hundredth, and a fourth containing one two-hundredth. All became tetanic in two or three hours, except the third, which was a *female* (the others being males), which required a longer time.

The one two-hundredth part of a grain of the acetate of strychnia is therefore detectible by means of the test conferred by physiology.

We now placed a male frog in one four-hundredth part of a grain of the acetate of strychnia, dissolved in six drachms of water. In three hours and a half it became violently tetanic.

The fresh frog is, therefore, at this season, strychnoscopic of one four-hundredth part of a grain of the acetate of strychnia, and probably to a much minuter quantity, which ulterior experiments must show.

In the two other experiments, the one five-hundredth and the one one-thousandth of a grain of the acetate of strychnine were detected.—*Lancet, in Pharm. Jour.*

POPULIN.

The crystalline substance obtained by Bracconot in 1830, from the bark and leaves of *Populus tremula*, consists of—

Carbon	56.49	56.49	56.36	56.34
Hydrogen	6.39	6.13	6.29	6.10
Oxygen	37.12	37.38	37.35	37.56

And its composition may be represented by the formula $C_{40}\,H_{26}\,O_{20}$, or by $C_{40}\,H_{22}\,O_{16} + 4\,HO$; since by heating at 212° F., it loses 8.43 per cent. water; and four equivalents HO correspond with 8.45 per cent.

Dilute hydrochloric acid dissolves populin, and at 212° F. decomposes it, forming, together with benzoic acid and grape sugar, a resin which melts in boiling water, and has all the characters of saliretin. When populin is heated with a mixture of sulphuric acid and bichromate of potash, it evolves hydruret of salicyle, which is inconsistent with the view that populin is a conjugate compound of saliretin, grape sugar, and benzoic acid. Piria considers it to be a compound of saligenin, grape sugar, and benzoic acid; and that the saligenin separated in its decomposition is resolved by the further action of acids into saliretin:

$$C_{40}\,H_{22}\,O_{16} + 4\,HO = C_{14}\,H_6\,O_4 + C_{14}\,H_8\,O_4 + C_{12}\,H_{12}\,O_{12}$$

Populin — Benzoic acid — Saligenin — Grape sugar

Under the influence of decomposing casein, at a moderate temperature, and in contact with carbonate of lime, populin is de-

composed with production of saligenin, lactic acid, and benzoate of lime.

Among the three substances supposed by Piria to exist in populin; saligenin and grape sugar have been recognized as constituents of salicine; so that there was reason to suppose populin might be converted into salicine by separation of the benzoic acid. This was found to be the case when populin is boiled with baryta water or milk of lime. In order to obtain the salicine, the benzoic acid is precipitated by means of perchloride of iron, excess of iron removed by lime, and excess of lime by carbonic acid. The liquid then yields salicine on evaporation.

Piria found the quantity of benzoic acid yielded in this way to be 28.90 per cent. This corresponds with the view he holds of its composition, which would require 26.68 per cent.

The salicine thus obtained is identical in all respects with the natural salicin, its composition being represented by the formula $C_{20}\ H_{18}\ O_{14}$.

The conversion of populin into salicin may be effected even by heating it with an alcoholic solution of ammonia to 212° F.

Weak nitric acid acts upon it only at 212 F., forming a yellow solution which, after long boiling, evolves vapor having the odor of hydruret of salicyle. When heated with ordinary nitric acid, populin is probably converted into nitrobenzoic acid and oxalic acid.

By the action of nitric acid, 1.30 s. g., populin is converted into a substance which Piria calls benzohelicin. The substance has great analogy with helicin; it crystallizes in silky needles; sulphuric acid dissolves it with yellow color, and the solution, when diluted with water, evolves hydruret of salicyle. The same substance is formed by boiling with hydrochloric acid with separation of benzoic acid. In the cold, caustic alkalies do not alter benzohelicin, but at 212° F. it dissolves with intense gold yellow color, yielding the same products, together with grape sugar, when the alkaline solution is neutralized by an acid.

The constitution of this substance would appear, therefore, to be analogous to that of populin. Its composition is represented by the formula $C_{40}\ H_{20}\ O_{16}$; by heating it does not lose water. The above decomposition may be represented by the equation:

$$C_{40}H_{20}O_{16} + 4\,HO = C_{14}H_6O_4 + C_{14}H_6O_4 + C_{12}H_{12}O_{12}$$

Benzohelicin — Benzoic acid — Hydruret of Salicyle — Grape sugar

Benzohelicin may be converted into helicin by boiling with a base that abstracts benzoic acid without acting upon helicin.—*Pharm. Jour. and Trans. Feb.* 1, 1856.

ON THE DECOMPOSITION OF IODIDE OF STARCH BY THE ANIMAL FLUIDS.

By John C. Dalton, Jr., M. D.

Professor of Physiology in the College of Physicians and Surgeons, New York.

Some months since, while experimenting on the digestion of starch, and its conversion into sugar in the intestine, I observed that the iodide of starch became very rapidly decolorized on being digested, at the temperature of 100° F., with the intestinal fluids taken from the duodenum of a recently killed dog. It appeared, also, that this effect was produced some time before any sugar had made its appearance in the mixture, and would even take place, with nearly equal promptness, at the ordinary temperature of the air. It seemed, at first, probable, that the decolorization was owing to a partial alteration of the starch, which passed into an intermediate condition, before undergoing its final conversion into sugar. Subsequent examination, however, showed that it was due to a simple decomposition of the iodide of starch by the organic substances of the intestinal fluids. Nearly all the animal fluids, indeed, when in a fresh condition, not only decolorize, more or less promptly, the blue iodide of starch, but prevent entirely the usual reaction between starch and iodine, when this latter substance is present in small quantity. When the iodide of starch, ready formed, comes in contact with these fluids, the iodine leaves the starch and combines with the organic matters; and it is under the form of such an organic combination that the iodine is absorbed from the intestine, passes through the circulation, and is discharged by the urine. The precaution, therefore, which is sometimes inculcated, in the administration of free iodine, to give the medicine in the interval between two meals, lest it should combine with the starchy matters of the food, and become insoluble and inert, is

altogether superfluous; since starch cannot retain the iodine in combination with it, in presence of the digestive fluids.

The iodide of starch, in the form of paste, has, indeed, been occasionally recommended as one mode of administering the drug; but I am not aware that the mode in which iodine, in this state of combination, becomes absorbed, has yet been directly investigated.

The solution of starch employed in the following experiments, was made by boiling five grains of starch in the ounce of water, and allowing the fluid to cool. The experiments were all made at the ordinary temperature of the atmosphere.

1. If ʒi of *saliva* be mixed with ʒi of iodine water, and ʒss of the starch solution added, no blue color is produced; but a drop or two of nitric acid immediately turns the mixture blue and opaque.

ʒi of iodine water is added to ʒi of the starch solution, making an opaque blue fluid; ʒii of saliva are then added, and the whole shaken up. The mixture becomes nearly colorless at the end of five minutes. The blue color is then restored by a drop or two of nitric acid.

2. If ʒi of iodine water, with ʒi of starch, be mixed with an equal quantity of fresh *pancreatic juice* (from the dog) the blue color is entirely dissipated in less than one minute.

3. Light yellow, nearly clear *bile*, from the dog's gall-bladder, destroys immediately the blue color of an equal quantity of starch and iodine water. On the addition of nitric acid, the blue color is restored, modified somewhat by the green tinge which the bile takes with nitric acid.

4. A healthy dog, kept for 24 hours without food, was killed by section of the medulla, and the scanty, light yellowish, frothy *fluid of the small intestine* collected. It decolorized immediately the blue iodide of starch, made in the above manner, and the blue color was restored by nitric acid.

A dog was kept for 24 hours without food, then fed with fresh lean meat, and killed half an hour after feeding. The intestinal fluids from the upper half of the small intestine acted on the iodide of starch in the same manner as in the last experiment.

5. If ʒii of the clear yellowish *serum of the blood* (horse's

blood) be added to ʒii of iodide of starch, the mixture loses its blue color immediately. It is brought back by nitric acid.

6 If ʒi of healthy human *urine* be added to ʒi of iodide of starch, the mixture is decolorized in five seconds. The blue color is restored by nitric acid.

The above effect is produced whether the urine be acid or slightly alkaline in reaction.

ʒi of urine mixed with ʒv of iodine water effectually prevents the reaction between the iodine and starch.

7. The *gastric juice* acts differently, in this respect, according to circumstances. If taken from the stomach of the fasting animal (by irritation, through a gastric fistula, with a metallic catheter), it is clear and colorless, and does not interfere at all with the reaction of starch and iodine. But that which is collected during the first half hour after feeding the animal on cooked meat, and which is slightly yellowish in color, and contains a little albuminose in solution, interferes with the reaction very perfectly. ʒi of such gastric juice decolorizes an equal quantity of iodide of starch in lesss than a minute.

A specimen of such gastric juice, however, containing a little albuminose, which had been kept for some months, was found to have lost almost entirely its power of preventing the union between starch and iodine.

If the colorless gastric juice, taken from the fasting animal, which has no effect on the iodide of starch, be digested for an hour at the temperature of 100° F., with finely cut boiled meat, and then filtered, the filtered fluid interferes with the reaction of iodine and starch, like the other animal fluids.

The iodine, in these cases, probably combines, as already intimated, directly with the organic (albuminoid) matters of the animal fluids, and is detected by starch only after these organic matters have been destroyed by nitric acid. It is not, however, easy to demonstrate this. If the serum of the blood, for example, be boiled with an excess of sulphate of soda, by which all of the albumen, and most of the other organic substances are coagulated, the clear filtered fluid interferes with the reaction of starch and iodine as before. It might be supposed that the iodine, on the contrary, was converted into an iodide of potassium or sodium, under the influence of alkaline carbonates, and that

it passed, under this form, through the circulation and into the excretions. Several circumstances, however, are opposed to this view. First, the iodide of starch is decomposed, not only by the saliva, serum of the blood, and pancreatic juice, which are alkaline; but also, quite as promptly, by urine and gastric juice, which are acid in reaction. Secondly, the gastric juice, as already mentioned, has no power of preventing the union of starch and iodine, when taken fresh from the stomach of the fasting animal, but yet gains this power in a high degree when artificially digested with meat at 100° F. It seems nearly certain, therefore, that the iodine combines, in this instance, with some of the albuminoid matters dissolved by the gastric juice.

This reaction of iodine with the animal substances is further illustrated, in a very striking manner, by the following experiments, performed at the suggestion and with the assistance of my friend, Dr. Wm. H. Ellett;—

I. If a mixed solution of boiled starch and iodide of potassium be spread upon the surface of the skin, and the two poles of a galvanic battery applied to the moistened surface a short distance from each other, no perceptible discoloration appears, provided the galvanic current be not very powerful; while if the same poles be applied to a piece of bibulous paper, moistened with the same solution, the blue iodide of starch appears at once at the positive pole.

II. If the negative pole of the battery be placed in contact with the bibulous paper, moistened as above, the positive pole taken in the left hand, and the circuit completed by touching the bibulous paper with the right forefinger, the shock is felt, but no discoloration of the paper is produced; but if the circuit be completed by a steel needle, held in the right hand, a dark stain immediately appears on the paper.

III. The negative pole was placed in contact with the moistened paper, and a fresh piece of animal membrane (uterus of the cow) attached by one end to the positive pole. The other end of the animal membrane was then cut to a fine point, by which the circuit was completed on the paper; but no stain occurred. A steel needle was then thrust through the animal membrane, and the circuit completed by the point of the needle, when the discoloration of the paper immediately appeared.

It appears, then, that whenever iodine is set free from its combination with potassium, in presence of starch and an animal organic substance, either living or recently dead, it combines with the organic substance in preference to uniting with the starch.

The influence of the animal fluids in preventing the mutual reaction of iodine and starch is, as might be expected, not unlimited, but depends on the relative quantities of the iodine and the organic substance with which it combines. If there be but little iodine present, it is all taken up by the organic substance, and shows no reaction with starch; while if present in large quantity, it attacks the starch also, and produces the characteristic blue color. Thus, one drachm of iodine water, mixed with one drachm of gastric juice holding albuminose in solution, has no reaction on starch; but a mixture of two drachms of the former to one drachm of the latter, strikes with starch a perceptible blue color. A single drop of the alcoholic tincture of iodine, mixed with one drachm of gastric juice, is sufficient to produce a blue color with one drop of the starch solution. Other animal fluids, however, appropriate larger quantities of free iodine. Two drops of tincture of iodine, for example, are completely saturated by one drachm of healthy urine, so that the mixture gives no reaction with starch; three drops give only a purplish color, while four drops strike a deep blue color on the addition of starch.

With the adoption of proper precautions, the reactions described above will not expose us to any serious error when endeavoring to ascertain the presence of either starch or iodine in the animal fluids. In testing for iodine, we have only to add a little nitric acid after dropping in the starch; and in testing for starch, we should be sure to add iodine enough to more than saturate the albuminoid substances present. It is at least evident, however, from the foregoing facts, that iodine cannot possibly exist in a free state in the animal fluids, but is always in either a metallic or an organic combination.—*Am. Journ. Med. Sci. April*, 1856.

A CASE OF POISONING BY STRAMONIUM SEEDS.

By Prof. W. Sherwood.

About eight o'clock in the evening, August, 1854, I was called in great haste to see a little girl three years old, the daughter of a German citizen residing in the northwestern part of Cincinnati. The child was in a state of partial stupor, from which it was difficult to arouse her sufficiently to gain her attention. She had at first complained of dizziness, then of headache, and when I first saw her the pupils were greatly dilated, and did not diminish on the approaching of a candle. She was unable to speak, swallowed with great difficulty, and soon lost all power of swallowing. There was constant muscular tremor throughout the system, and frequently somewhat obscure convulsions.

The child, when first attacked, stated that she had eaten some seeds, and a broken pod from the stramonium, or Jamestown weed, was found where she had been playing in the yard. The parents, however, not aware of the extremely poisonous property of these seeds, did not send for medical advice until the alarming symptoms I have described made their appearance.

Ten grains of sulphate of zinc were given in solution, and this failing to produce emesis, an effort was made to repeat it, but the child could not swallow. I then went to a neighboring drug store, and to the offices of two or three physicians, hoping to obtain a stomach pump, but failed. I then procured the longest and largest catheter I could find, together with a two ounce glass syringe, and returned to my little patient. Having passed the catheter into the stomach, a second dose of sulphate of zinc was thrown in by means of the syringe, but emesis did not follow. I now ordered finely ground mustard to be mixed with warm water to the consistency of milk, and injected a syringe full of this into the stomach. In a few minutes very copious emesis occurred, bringing away nearly a dozen green stramonium seeds, mixed with the food she had eaten at supper soon after swallowing the seeds.

Her stomach was washed out by two or three injection of warm water, by means of a stomach pump which had been brought by a messenger who had been dispatched for one, but only two or three more seeds could be obtained. A syringe full of strong

coffee was now administered and the patient placed upon a bed. She speedily began to show signs of returning consciousness, soon was able to swallow coffee, and a small dose of carbonate of ammonia which was prescribed, and then for the first time evinced an inclination for sleep. I ordered her to be let alone, and she soon fell into a quiet slumber which continued until morning. When she awoke, she was somewhat weak, but went to her play as usual, and seemed to experience no further inconvenience.

One circumstance struck me with some force during the excitement of the occasion; this was the self-upbraiding of the child's father. "Oh," said he, "if I had only cut these weeds down. I was about to do it, the other day, but when I thought they looked so green and cool I would let them stand." "But," he continued, "if I live till morning, I will cut them all down before breakfast." How many, like this honest German, by neglecting precautions, the propriety of which was or should have been obvious, have been compelled to confess their negligence or want of forethought, when it was too late.—*College Journal.*

Varieties.

On Perfumery. By Septimus Piesse.

(Continued from page 180.)

By way of personal adornment, few things are of more ancient origin than the practice of painting the face, dyeing the hair, and blackening the eyebrows and eyelashes.

There is a practice universal among the females of the higher and middle classes in Egypt, and very common among the lower orders, which is, that of blackening the edge of the eyelids, both above and below the eye, with a black powder, which they term *kohhl*. The kohhl is applied with a small probe of wood, ivory, or silver, tapering towards the end, but blunt. This is moistened sometimes with rose-water, then dipped in the powder, and drawn along the edges of the eyelids. It is thought to give a very soft expression to the eye, the size of which, in appearance, it enlarges; to which circumstances probably Jeremiah refers when he writes, "Though thou rentest thy face (or thine eyes) with painting, in vain shalt thou make

thyself fair." (Jer. iv. 30). See also Lane's *Modern Egyptian*, vol. i. p. 31, *et seq.*

A singular custom is observable both among Moorish and Arab females—that of ornamenting the face between the eyes with clusters of bluish spots or other small devices, and which, being stained, become permanent. The chin is also spotted in a similar manner, and a narrow blue line extends from the point of it, and is continued down the throat. The eyelashes, eyebrows, and also the tips and extremities of the eyelids, are colored black. The soles, and sometimes other parts of the feet, as high as the ancles, the palms of the hands, and the nails, are died with a yellowish red with the leaves of a plant called Henna (*montinidæ*), the leaf of which somewhat resembles the myrtle, and is dried for the purposes above mentioned. The back of the hand is often colored and ornamented in this way with different devices. On holidays they paint their cheeks of a red brick color, a narrow red line being also drawn down the temples.

In Greece, "for coloring the lashes and sockets of the eye they throw incense or gum labdanum on some coals of fire, intercept the smoke which ascends with a plate, and collect the soot. This I saw applied. A girl, sitting cross-legged as usual on a sofa, and closing one of her eyes, took the two lashes between her fore-finger and thumb of her left hand, pulled them forward, and then, thrusting in at the external corner a sort of bodkin or probe which had been immersed in the soot and withdrawing it, the particles previously adhering to the probe remained within the eyelashes."—Chandler's *Travels in Greece.*

Dr. Shaw states that among curiosities that were taken out of the tombs at Sahara relating to Egyptian women, he saw a joint of the common reeds, which contained one of these bodkins, and an ounce or more of this powder.

In England the same practice is adopted by many persons that have grey hair; but instead of using the black material in the form of a powder, it is employed as a crayon, the color being mixed with a greasy body, such as the brown and black stick pomatums, described in the previous article.

Turkish Hair Dye.

In Constantinople there are some persons who devote themselves to the preparation of cosmetics, and acquire much money thereby. In particular there are some Armenians who are well acquainted with the business, and obtain large sums of money from those desirous of learning this art. Amongst these cosmetics is a black dye for the hair, which, according to Landerer, is prepared in the following manner:

Finely-pulverized galls are kneaded with a little oil in a paste, which is roasted in an iron pan until the oil vapors cease to evolve, upon which the residue is triturated with water into a paste, and heated again to dryness. At the same time a metallic mixture, which is brought from Egypt to the commercial marts of the East, and which is termed in Turkish *Rastikope-*

tra, or *Rastik-Yuzi*, is employed for this purpose. This metal, which looks like dross, is by some Armenians intentionally fused, and consists of iron and copper. It obtains its name from its use for the coloration of the hair, and particularly the eyebrows—for *rastik* means eyebrows, and *susi* stone. The fine powder of this metal is as intimately mixed as possible with the moistened gall mass into a paste, which is preserved in a damp place, by which it acquires the blackening property. In some cases this mass is mixed with the powder of odorous substances which are used in the seraglio as perfumes, and called *karsi*, that is, pleasant odor; and of these the principal ingredient is ambergris. To blacken the hair, a little of this dye is triturated in the hand or between the fingers, with which the hair or beard is well rubbed. After a few days the hair becomes very beautifully black, and it is a real pleasure to see such fine black beards as are met with in the East among the Turks who use this black dye. Another and important advantage in the use of this dye consists therein, that the hair remains soft, pliant, and for a long time black, when it has been once dyed with this substance. That the coloring properties of this dye are to be chiefly ascribed to the pyrogallic acid, which can be found by treating the mass with water, may be with certainty assumed.

Litharge Hair Dye.

Powdered litharge	2 lb.
Quick lime	¼ lb.
Calcined magnesia	½ lb.

Slake the lime, using as little water as possible to make it disintegrate, then mix the whole by a seive.

Another Way.

Slaked lime	3 lb.
White lead in powder	2 lb.
Litharge	1 lb.

Mix by sifting, bottle, and well cork.

Directions to be sold with the above.—"Mix the powder with enough water to form a thick creamy fluid; with the aid of a small brush, completely cover the hair to be dyed with this mixture; to dye a light brown, allow it to remain on the hair four hours; dark brown, eight hours; black, twelve hours. As the dye does not act unless it is moist, it is necessary to keep it so by wearing an oiled silk, india-rubber, or other waterproof cap.

"After the hair is dyed, the refuse must be thoroughly washed from the head with plain water; when dry, the hair must be oiled."

Simple Silver Dye.

(Otherwise "Vegetable Dye.")

Nitrate of silver . . .	1 oz.,
Rose water	1 pint.

Before using this dye it is necessary to free the hair from grease by washing it with soda or pearlash and water. The hair must be quite dry.

prior to applying the dye, which is best laid on with an old tooth-brush. This dye does not "strike" for several hours. It needs scarcely be observed that its effects are more rapidly produced by exposing the hair to sunshine and air.

Hair Dye, with Mordant.

Brown.

Nitrate of silver . . .	1 oz.,	blue bottles.
Rose water	8 oz.,	
The Mordant.—Sulphuret of potassium	1 oz.,	white bottles.
" Water . .	8 oz.	

Black.

Nitrate of silver . . .	1 oz.,	blue bottles.
Water	6 oz.	
The Mordant.—Sulphuret of potassium	1 oz.,	white bottles.
" Water . .	6 oz.	

The mordant is to be applied to the hair first; when dry, the silver solution.

Great care must be taken that the sulphuret is fresh made, or, at least, well preserved in closed bottles, otherwise, instead of the mordant acting to make the hair black, will tend to impart a *yellow* hue. When the mordant is good, it has a very disagreeable odor, and although this is the quickest and best dye, its unpleasant smell has given rise to the

Inodorous Dye.

Blue Bottles.—Dissolve the nitrate of silver in the water as in the above, then add liquid ammonia by degrees until the mixture becomes cloudy from the precipitate of the oxide of silver, continue to add ammonia in small portions until the fluid again becomes bright from the oxide of silver being redissolved.

White Bottles.—Pour half a pint of boiling rose-water upon three ounces of powdered gall-nuts; when cold, strain and bottle. This forms the mordant, and is now in the same way as the first-named dye, like the sulphuret mordant. It is not so good a dye as the previous one.

French Brown Dye.

Blue Bottles.—Saturated solution of sulphate of copper; to this add ammonia enough to precipitate the oxide of copper and redissolve it (as with the silver in the above), producing the azure liquid.

White Bottles.—Mordant—Saturated solution of prussiate of potass.

Artificial hair, for the manufacture of perukes, is dyed in the same manner as wool.

There are in the market several other hair dyes, but all of them are but modifications of the above, possessing no marked advantage.

Quick Depilatory or Rusma.

For removing hair.

As the ladies of this country consider that the growth of hair upon the

upper lip, upon the arms, and on the back of the neck, to be detrimental to beauty, those who are troubled with such physical indications of good health and vital stamina have long had recourse to rusma or depilatory for removing it.

This or analogous preparations were introduced into this country from the East, rusma having been in use in the harems of Asia for many ages.

Best slaked lime	3 lb.
Orpiment, in powder . . .	½ lb.

Mix the material by means of a drum sieve; preserve the same for sale in well-corked or stopped bottles.

Directions to be sold with the above. Mix the depilatory powder with enough water to render it of a creamy consistency; lay it upon the hair for about five minutes, or until its caustic action upon the skin renders it necessary to be removed; a similar process to shaving is then to be gone through, but instead of using a razor, operate with an ivory or bone paper knife; then wash the part with plenty of water, and apply a little cold cream.

The precise time to leave depilatory upon the part to be depilated cannot be given, because there is a physical difference in the nature of hair. "Raven tresses" require more time than "flaxen locks;" the sensitiveness of the skin has also to be considered. A small feather is a very good test for its action.

A few readers, will, perhaps, be disappointed in finding that I have only given one formula for depilatory; the receipts might easily have been increased in number but not in quality; the use of arsenical compounds is objectionable, but it undoubtedly increases the depilating action of the compounds. A few compilers of "Receipt Books," "Supplements to Pharmacopœias," and others, add to the lime, "charcoal powder," "carbonate of potass," "starch," &c., but what action have these materials—chemically—upon hair? The simplest depilatory is moistened quick lime, but it is less energetic than the mixture recommended above; it answers very well for tanners and feltmongers; with whom time is no object.

Absorbent Powders.

A lady's toilet-table is incomplete without a box of some absorbent powder; indeed, from our earliest infancy powder is used for drying the skin with the greatest benefit—no wonder that its use is continued in advanced years, if, by slight modifications in its composition, it can be used not only as an absorbent, but as a means of "personal adornment." We are quite within limits in stating that many tons-weight of such powders are used in this country annually. They are principally composed of various starches, prepared from wheat, potatoes, and various nuts, mixed, more or less, with powdered talc—of Haüy, steatite, (soap-stone) French chalk, oxide of bismuth, and oxide of zinc, &c. The most popular is what is termed

Violet Powder.

Wheat starch	12 lb.	Otto of Bergamot	¼ oz.
Orris root powder	2 lb.	Otto of cloves	2 drs.
Otto of lemon	½ oz.		

Rose Face Powder.

Wheat starch	7 lb.	Otto of rose	2 drs.
Rose pink	½ dr.	Otto of santal	2 drs.

Plain or Unscented Hair Powder

Is pure wheat starch.

Face Powder.

Starch	1 lb.	Oxide of bismuth	4 oz.

Perle Powder.

French chalk	1 lb.	Oxide of zinc	1 oz.
Oxide of bismuth	1 oz.		

Blanc de Perle

Is pure oxide of bismuth in powder.

French Blanc

Is levigated talc passed through a silk sieve.

This is the best face powder made, particularly as it does not discolor from emanation of the skin or impure atmosphere.

Liquid Blanc (for theatrical use.)

The use of a white paint by actresses and dancers is absolutely necessary; great exertion produces a florid complexion, which is incompatible with certain scenic effects, and requires a cosmetic to subdue it.

Madame V——, during her stage career, has probably consumed more than half a hundred-weight of oxide of bismuth, prepared thus:

Rose or orange-flower water	1 pint.
Oxide of bismuth	4 oz.

Mixed by long trituration.

Calcined Talc

Is also extensively used as a toilet powder, and is sold under various names; it is not so unctuous as the ordinary kind.

Rouge and Red Paints.

These preparations are in demand, not only for theatrical use, but by private individuals; various shades of color are made, to suit the complexions of the blonde and brunette—one of the best kind is that termed

Bloom of Roses.

Strong liquid ammonia	½ oz.	Rose-water	1 pint.
Finest carmine	¼ oz.	Esprit de rose (triple)	½ oz.

Place the carmine into a pint bottle, and pour on it the ammonia; allow them to remain together, with occasional agitation, for two days, then add the rose-water and esprit, and well mix. Stand the bottle in a quiet situation for a week: any precipitation of impurities from the carmine will sub-

side; the supernatent "Bloom of Roses" is then to be bottled for sale. If the carmine was perfectly pure there would be no precipitate; nearly all the carmine purchased from the makers is more or less sophisticated, its enormous price being a premium to its adulteration.

Carmine cannot be manufactured *profitably* on a small scale for commercial purposes; four or five manufacturers supply the whole of Europe! M. Titard, Rue Grenier St. Lazare, Paris, produces, without doubt, the finest article—singular enough, however, the principal operative in the establishment is an old Englishman.

"The preparation of the finest carmine is still a mystery, because, on the one hand, its consumption being very limited, few persons are engaged in its manufacture; and, upon the other, the raw material being costly, extensive experiments on it cannot be conveniently made."—Dr. Ure.

In the *Encyclopédie-Roret* will be found no less than a dozen recipes for preparing carmine; the number of formulæ will convince the most superficial reader that the true form is yet withheld.

Analysis has taught us its exact composition, but a certain dexterity of manipulation and proper temperature is also important to know.

Most of the recipes given by Dr. Ure, and others, are from this source, but as they possess no practical value we refrain from reprinting them.

Toilet Rouges

Are prepared, of different shades, by mixing fine carmine with talc powder, in different proportions—say one drachm of carmine to two ounces of talc, or one carmine to three of talc, and so on; these rouges are sold in powder, and also in cake or china pots, for the latter the rouge is mixed with a minute portion of solution of gum tragacanth. M. Titard prepares a great variety of rouges: in some instances the coloring matter of the cochineal is spread upon thick paper and dried very gradually, it then assumes a beautiful green tint; this curious optical effect is also observed in "pink saucers." What is known as Chinese book rouge, is evidently made in the same way, and has been imported into this country for many years.

When the bronze green cards are moistened with a piece of damp cotton wool, and applied to the lips or cheeks, the color assumes a beautiful rosy hue. Common sorts of rouge, called "theatre rouge," is made from the Brazil wood lake; another kind is derived from the safflower (*Carthamus tinctorius*); from this plant also is made

Pink Saucers.

The safflower is washed in water until the yellow coloring matter is removed; the carthamine is then dissolved out by a weak solution of carbonate of soda; the coloring is then precipitated into the saucers by the addition of sulphuric acid to the solution.

Cotton wool and crape being colored in the same way is used for the same purpose, the former being sold as Spanish wool, the latter as crépon rouge.—*Annals of Pharmacy.* [*Concluded.*

Philadelphia College of Pharmacy.

At the Annual Commencement of the Philadelphia College or Pharmacy, held on Thursday evening, March 20th, at 8 o'clock, in the Musical Fund Hall, the degree of Graduate in Pharmacy was conferred, on behalf of the Board of Trustees by its Presiding Officer, HENRY C. BLAIR, Esq., on the following gentlemen.

Graduating Class.		*Subject of Thesis.*
Banes, John M.	Cuba.	Relative strength of Tincture of Opium.
Battey, Robert	Geo.	Gossypium Herbaceum.
Beam, Isaac R.	Philadelphia.	Capsicum Annuum.
Biddle, John W.	"	Apocynum Androsæmifolium.
Chenoweth, John T.	Ohio.	Cimicifuga Racemosa.
Cummings, Wm. Trevette	Philadelphia.	Cuminum Cyminum.
Dickson, John M.	"	Euphorbia Hypericifolia.
Dilkes, Theodore	"	Chimaphila Umbellata.
Evans, William Jr.	"	Acorus Calamus.
Gerhart, Herman	"	Ergota.
Guthrie, Joseph T.	"	Sabbatia Angularis.
Harte, James H.	Ireland.	Euphorbia Ipecacuanha.
Higbee, Hugh H.	N. J.	Saponaria Officinalis.
Kearney, Wm. H. L.	Philadelphia.	Eupatorium Perfoliatum.
Kendall, John H.	Pa.	Cornus Florida.
McBride, James	"	Asclepias Tuberosa.
Pancoast, Dillwyn P.	N. J.	Ilex Opaca.
Paynter, Woodman S.	Philadelphia.	Aralia Nudicaulis.
Perrot, E. Raphael	Paris.	Triosteum Perfoliatum.
Pratt, Wm. H.	Connecticut.	Xanthoxylum Fraxineum.
Scattergood, George J.	Philadelphia.	Castor Oil Beans.
Shick, Andrew J.	"	Extractum Panacis Quinquefolium.
Siddall, Francis H.	"	Coptis Trifolia.
Stanhope, W. Bellingham	Delaware.	Gillenia Trifoliata.
Thompson, Wm.	Philadelphia.	Dorstenia Contrayerva.
Warner, Wm. R.	Md.	Cantharis Vittata & Mylabris Cichorii.
Weaver, Thomas	Philadelphia.	Helianthemum Canadense.
Wilson, Adam H.	"	Albumen.

After which the Valedictory Address was delivered by Prof. ROBERT BRIDGES.

NOTICE

To the Pharmaceutists and Druggists of the United States.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The third Article, 1st Section of the Constitution, requires the President, at least three months previous to the annual meeting, to publish a call in such Journals as he may select, stating therein the object of the Association and the conditions of membership. In compliance with this duty, you are hereby notified that the next Annual Meeting of the Association will convene in the city of Baltimore on the second Tuesday, (the 9th) of September, at 3 o'clock P. M.

The objects of the Association are to deliberate on the condition of our

profession, the advancement of pharmaceutical knowledge, and the elevation of the professional character of Druggists throughout the United States. The following extracts from the Constitution exhibit the Conditions of Membership.

Conditions of Membership.

SECTION 1. Every apothecary and druggist of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, who, after duly considering the object of this Association, and the obligations of its Constitution, is willing to subscribe to them, is eligible to membership.

SECTION 2. The mode of admission to membership shall be as follows: Any person eligible to membership may apply to any member of the Executive Committee, who shall report his application to the said committee. If after investigating his claims they shall approve his election, they shall at the earliest time practicable, report his name to the Association, and he may be elected by two-thirds of the members present on ballot. Should an application occur in the recess, the members of the committee may give the approval in writing, which, if unanimous, and endorsed by the President, shall constitute him a member, and the fact be reported to the Association at the next succeeding meeting.

SECTION 4. Every member shall pay into the hands of the Treasurer the sum of two dollars as his yearly contribution. Members shall be entitled, on the payment of five dollars, to receive a certificate of membership signed by the President, one Vice President and the Secretary, covenanting in writing to return the same to the proper officers on relinquishing their connection with the Association.

SECTION 5. Every local Pharmaceutical Association shall be entitled to five delegates.

JOHN MEAKIM, President.

New York, April, 1856.

Minutes of the College.

At the annual meeting of the Philadelphia College of Pharmacy held at the College Hall, 3rd mo. 31, 1856. CHARLES ELLIS, President, in the chair.

The Minutes of the College and of the Board of Trustees for the last six months were read.

From the latter it appears that Andrew W. Gayley has been duly elected a resident member.

There have been one-hundred and twelve matriculants in the School of Pharmacy during the session just closed, which is the largest class yet convened in the College. Of this number, twenty-eight having complied with the requisites of graduation, were at the recent public commencement, declared Graduates in Pharmacy. (See page 274.)

The Secretary read a letter from Peter Williamson, accepting the offer of the College in relation to his membership, and tendering his thanks for the privileges conferred.

The revised Laws of the College, as agreed upon at the late adjourned meeting, were now again read and fully considered; after some verbal alterations they were by vote unanimously adopted. (See page 280.)

The Committee appointed at the last meeting to propose amendments and prepare the Laws for publication, were on motion continued to publish in pamphlet form, the Charter, Laws, Code of Ethics, list of members and graduates, and such information relative to the College and School as they may deem advisable.

The Committee on Sinking Fund reported as follows:

"That since the last annual meeting of the College, they have received,

From Proceeds of Patent Medicine Directions sold, .	$70.00
And from a member, a donation to the fund . .	5.00
	$75.00

And have paid for two shares of stock at par $200.

The debt of the College in 1854, when your Committee commenced its labors, was $7800.

We have now the pleasure of reporting that the whole amount still due is *only* $200.

There is now in the hands of the Committee . .	$90.00
And temporarily loaned to the College to pay ground rent	100.00
	$190.00

If the College conclude to keep up the stock of P. M. Directions, this amount will probably be wanted this spring, to print a new edition.

SAMUEL F. TROTH,
EDWARD PARRISH,
AMBROSE SMITH,
Committee on the Sinking Fund.

The report was accepted, and the Committee encouraged to continue the publication of the Patent Medicine directions.

The report of the Committee on Labels was read and accepted. It informed that the new edition of bronzed labels had been issued, and the necessary steps taken to provide for meeting the heavy expense of publication.

The following report from the Publication Committee was read.

"The undersigned respectfully report that the 'Journal' has been regularly issued since their last communication to the College in March, 1855. So far as they have been able to learn, the subscribers are satisfied with its conduction. The present number of subscribers, including those members who receive it gratuitously, is about eight hundred, of these forty-three are new subscribers since last report.

The advertising sheet connected with the Journal has been more encouraged during the past year than before, and bids fair to be a useful medium.

The statement of the Treasurer annexed hereunto will exhibit the state of the finances of the Publishing Committee; all which is submitted by

CHARLES ELLIS,
R. BRIDGES,
A. B. TAYLOR,
EDWARD PARRISH,
W. PROCTOR, JR.
Publishing Committee.

This Report was accepted, and the Committee encouraged to expend the profits of the Journal in editing, improving, and illustrating it.

The Committee on notices of deceased members produced an essay upon the life and character of the late Charles Schaffer, which was directed to be recorded and published in connection with the Minutes. (See below.)

The annual election for officers, resulted in the choice of the following:

President.—Charles Ellis.

1st Vice President.—Samuel F. Troth.

2d Vice President.—Dillwyn Parrish.

Recording Secretary.—Edward Parrish.

Corresponding Secretary.—William Procter, Jr.

Treasurer.—Ambrose Smith.

Trustees.—John H. Ecky, Dr. R. Bridges, D. S. Jones, J. C. Savery, T. S. Weigand, Saml. N. James, H. M. Troth, and S. S. Bunting.

Committee on Sinking Fund.—Saml. F. Troth, E. Parrish, Ambrose Smith.

Publication Committee.—Charles Ellis, Dr. R. Bridges, E. Parrish, A. B. Taylor, and W. Procter, Jr.

Delegates to the American Pharmaceutical Association.—Charles Ellis, Henry C. Blair, W. Procter, Jr., A. B. Taylor, and S. S. Garrigues.

On motion the College adjourned. Edward Parrish, *Secretary.*

OBITUARY NOTICE OF CHARLES SCHAFFER.

Charles Schaffer was born in the city of Philadelphia in 1803, and was regularly educated to the drug business by the late Thomas Cave, a well known and respectable druggist with whom, in the year 1829, he became a partner under the name of Cave & Schaffer. This connection lasted till the death of Thomas Cave, in 1845, when he continued the business alone; until, in 1850, he associated with him his brother, Jos. L. Schaffer, in the firm of C. & J. L. Schaffer. Few drug houses in this city have enjoyed a larger share of the confidence of southern and western merchants than these.

The business career of Mr. Schaffer was marked by enterprise and public spirit, which led him to aid the various public improvements projected by our merchants for the developement of the business facilities of our city.

He was connected with this College from an early period in its history till the close of his life, contributing his means to the advancement and elevation of the profession, to which he owed his success in life.

He was one of the founders and a trustee of the Fire Association of Philadelphia.

He gave a large share of his time to the interest of the St. John's Lutheran Church, of which he was a member, and for years was honored with some of its most important trusts.

In illustration of his character we quote the language of one whose pursuits made him intimately acquainted with the subject of our notice:

"Mr. Schaffer was truly an excellent man, intelligent, industrious, persevering, and honorable. During a quarter of a century of constant busi-

ness intercourse with him, I have yet to discover the first transaction that ought to cause the slightest tinge of shame.

Mr. Schaffer's manners were polite, conciliating, and winning, without affectation. He was equally prompt, decided and energetic, without the shadow of bluntness. Among his acquaintance he was esteemed a gentleman in its largest sense. With these qualifications and excellent character he was prosperous in business; the success of competitors excited in him no envy, his motto was 'live and let live.' He was eminently generous, and of him it may be said with truth, 'large was his bounty, and his soul sincere.'"

This estimable man was called away from the scene of his active pursuits in the prime of life. He died in the 52d year of his age, leaving to surviving relatives and friends the rich legacy of a high and honorable example, with the consoling belief that he has exchanged mortality for an immortality of bliss.

CHARTER AND LAWS

OF THE

Philadelphia College of Pharmacy.

An Act to Incorporate the Philadelphia College of Pharmacy.

WHEREAS, to dispense and prepare drugs and medicines for the use of the sick, requires knowledge and skill of a peculiar kind, an ignorance of which opens the door to numerous abuses and evils, and is pregnant with serious consequences to health and life; and it being the duty of every good government to protect, as far as in it lies, its citizens from those ills and dangers to which they become exposed in the multiplied relations of society, by promoting and encouraging wholesome institutions and regulations, calculated to advance the well-being, security and interests of the community; and it being represented to the Legislature, that an institution has been established in the city of Philadelphia, called "The Philadelphia College of Apothecaries," for the purpose of cultivating, improving, and making known a knowledge of Pharmacy, its collateral branches of science, and the best modes of preparing medicines and their compounds, and of giving instruction in the same by public lectures:

Now, that the purposes thereof may be the better carried into effect:

SECT. 1. Be it enacted, by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in general assembly met, and it is hereby enacted by authority of the same, That all such persons as now are members of the Philadelphia College of Apothecaries, or may hereafter become members of the same, be, and they are hereby made and constituted a corporation and body politic, in law and in fact, to have continuance forever, by the name, style, and title of the PHILADELPHIA COLLEGE OF PHARMACY, with power to make one public and common seal, and also one private

seal to use in their affairs, and the same or either of them to change at pleasure; to make contracts relative to said institution, to sue and be sued, and by that name and style to be capable, in law, of purchasing, taking, holding, and conveying any estate, real or personal, for the use of said corporation: Provided, that the annual income of such estate shall not exceed in value five thousand dollars, nor be applied to any other purposes than those for which this corporation is formed.

SECT. 2. And be it further enacted, by the authority aforesaid, That the said College may establish By-Laws and Rules for its government and regulation, and for the preservation and application of the funds thereof, not repugnant to the Constitution and Laws of the United States or of this Commonwealth, and shall have power to erect an edifice for their accommodation, and to constitute a faculty or learned body, to consist of such head or heads, and such a number of professors in pharmacy, materia medica, chemistry, and the collateral sciences, as they may judge necessary and proper, and to do everything needful and necessary to the establishment of said College and Faculty.

SECT. 3. And be it further enacted, by the authority aforesaid, That the officers of said College shall be a President and two Vice Presidents, a Secretary and Treasurer, whose respective duties may be assigned by the By-Laws, and who shall be elected at the stated meeting of the College, held in the month of March in each year, and any vacancy that may occur may be supplied by a special election; there shall also be elected a Board of Trustees consisting of sixteen members, and the officers of the College shall also be ex-officio members of the Board of Trustees; one half of the said Trustees shall be chosen at the stated meeting in March, and the other half at the stated meeting in September; and the said Board of Trustees, nine of whom shall constitute a quorum, shall conduct the ordinary affairs of the College, make such rules and regulations, and do all other things necessary for the government and support of the School of Pharmacy, as they may deem fit and proper, and perform such duties as are or may be from time to time committed to them by the said College; the acts of the Board of Trustees, however, to be subject to the revision of the College at each stated meeting.

SECT. 4. And be it further enacted, by the authority aforesaid, That if the annual and semi-annual elections for officers of said College, and members of the Board of Trustees, shall not be held on the stated days, the said corporation shall not be thereby dissolved, but the officers and trustees shall continue in office until a new election.

JOSEPH LAWRENCE,
Speaker of the House of Representatives.
WILLIAM MARKS, JUN.,
Speaker of the Senate.

Approved March 30, 1822,
JOSEPH HEISTER.

Laws of the Philadelphia College of Pharmacy, as Revised in 1856.

LAW I.—*Of the President and Vice President.*

Sect. 1. The President, or, in his absence, one of the Vice Presidents, shall preside and maintain order at the meetings of the College.

Sect. 2. He shall, at the request of any three members, specifying the object in view, call a special meeting of the College.

Sect. 3. He shall nominate all committees, unless a ballot be required by the members, or provided for by the laws; and shall sign all the diplomas and certificates of the College.

LAW II.—*Of the Secretary.*

Sect. 1. The Secretary shall keep fair and correct minutes of the proceedings of the College and a list or roll of members.

Sect. 2. He shall issue the notices for the meetings at least one day previous to the time, and furnish the chairmen of all committees with a copy of the minute of their appointment.

Sect. 3. He shall also compile the minutes for publication in the Journal, and by his signature shall attest the certificates of membership and diplomas.

LAW III.—*Of the Corresponding Secretary.*

The Corresponding Secretary shall conduct the correspondence of the College with associate and honorary members, and scientific individuals and societies. It shall be his duty to reply to all foreign communications addressed to or regarding the College. He shall first submit all his proceedings to the President for his approval, and their record shall be read at each stated meeting of the College.

LAW IV.—*Of the Treasurer.*

Sect. 1. The Treasurer shall receive and take charge of the funds of the College, giving bond and security to the President, if required, for the faithful performance of this trust. He shall also hold and issue the certificates of membership and diplomas; shall have the custody of the seal, and affix the same under direction of the College or Board of Trustees.

Sect. 2. He shall pay no monies unless on an order of the President, or the Chairman of the Board of Trustees, countersigned by the respective Secretaries of the College or Board, as the case may be.

Sect. 3. He shall present annually to the Board of Trustees, at the stated meeting in February, a statement of his accounts.

LAW V.—*Of the Members.*

Sect. 1. The members of the College shall consist of resident, associate, and honorary members.

Sect. 2. Any graduate in Pharmacy, conforming in his professional conduct to the code of ethics adopted by this College, may be elected a resident member by the Board of Trustees. Three negative votes shall defeat his election.

Any applicant for resident membership, conforming to the Code of Ethics adopted by this College, who has served a regular apprenticeship to the drug and apothecary business, but is not a graduate in Pharmacy, may be examined by a Committee of Examination, to be appointed annually by the Board of Trustees, and if his examination is satisfactory, he shall in like manner be eligible to election by the Board.

Any druggist or apothecary, not a graduate in Pharmacy, but who has been established in business for at least six years, and conforms to the Code of Ethics of this College, shall be eligible for resident membership—provided he is recommended by the Board of Trustees, to a stated meeting of the College; three negative votes to defeat such recommendation; and, on ballot in the College, not more than three votes are cast against him.

Sect. 3. Resident members shall pay an installation fee of five dollars, and five dollars annually thereafter, in the month of December of each year. But any resident member elected after the 1st day of March in any year, shall not be obliged to pay the annual contribution of that year.

Resident members shall be entitled to receive the Journal free of charge, unless in arrears, in which case the Treasurer shall notify the Publication Committee to discontinue it until said arrearages are paid.

Sect. 4. Druggists and Pharmaceutists residing in any part of the United States, may be elected, under the same restrictions as prescribed in the case of resident members, associate members of the College—each person so elected to pay a contribution of twenty-five dollars, in lieu of all others contributions.

Sect. 5. All such persons as, from their knowledge of Materia Medica, Pharmacy, and their collateral branches of science, shall, in the opinion of the College, merit that distinction, may, on the recommendation of four members, be proposed as candidates for honorary membership at one stated meeting of the College, and may be ballotted for at the next stated meeting; three-fourths of the votes given shall be necessary to an election.

Sect. 6. Associate and honorary members shall have the same privileges as resident members in regard to the use of the library and cabinet, and attending the lectures and meetings of the College, but they shall have no right to vote or hold any office in the institution.

Sect. 7. No resignation shall be received from any member of the College, unless accompanied by a voucher from the Treasurer that his certificate of membership has been returned or destroyed, and all arrearages paid. The College may, however, by vote, continue the certificate to one who may have resigned his membership.

Sect. 8. Any member of the College neglecting the payment of his contributions for two years after they are due, may be expelled the College by a vote of two-thirds of the members present.

Sect. 9. Any person elected a member of the College and refusing to pay his initiation fee, and to sign the Constitution, for six months after being informed of his election, shall forfeit his right of membership.

Sect. 10. No member of the College shall receive an apprentice for a less term than four years; and it shall be rendered obligatory on such apprentice to attend two courses of the different lectures of the institution.

Sect. 11. Every member of the College shall, on paying one dollar, be entitled to a certificate of membership, signed by the President and Vice Presidents, attested by the Secretary, and sealed with the seal of the College; such member covenanting in writing to return said certificate to the College on ceasing to be a member, from any cause whatever. The publication of the certificate of membership, as a business advertisement, is deemed inconsistent with the spirit of the Code of Ethics.

LAW VI.—*Of the Trustees.*

Sect. 1. The Board of Trustees shall meet once a month, or oftener, if necessary, by adjournments, or on the call of their Chairman; and nine members shall constitute a quorum for the transaction of business.

Sect. 2. The Board of Trustees shall control and regulate the School of Pharmacy; shall appoint Professors, as vacancies may occur, or as they may deem expedient, to lecture on Materia Medica, Chemistry, theory and practice of Pharmacy, and other branches of science.

They shall appoint a Committee of Examination, who, in conjunction with the Professors in the School of Pharmacy, shall examine and determine the fitness of candidates for the degree, and may, by vote, confer the degree of Graduate in Pharmacy upon such as are recommended as suitable by said Committee. They shall be entrusted with the election of members, as specified in Law V.

They shall appoint committees to have the oversight of the library, the cabinet, herbarium, and the apparatus of the College; and may, from time to time, appropriate funds of the College to the increase of these, for the benefit of the members and students.

They shall have the care and oversight of the College, keeping the hall in repair, and renting such parts as may not be in use for the purposes of the College.

The minutes of the Board of Trustees shall be read at the meetings of the College for approval or dissent.

LAW VII.—*Of the Meetings for Business.*

Sect. 1. The stated meetings of the College, for the transaction of business, shall be held on the last Monday in March and September.

Sect. 2. Eleven members shall constitute a quorum.

Sect. 3. As soon as eleven members shall appear, at or after the appointed time of meeting, the President, or, in his absence, one of the Vice Presidents, or, in their absence, a Chairman pro tempore, shall take the chair and call the members to order.

Sect. 4. After the meeting has been organized, no member shall leave the room without permission from the presiding officer.

Sect. 5. At stated or adjourned meetings business shall be proceeded with in the following order, viz:

1. The Secretary shall call the roll and note absentees.

2. Minutes of the preceding meeting read, corrected, if necessary, and adopted.

3. The minutes of the Board of Trustees, for the preceding meeting or meetings, and such reports and business as they may present.

4. Incidental business.

Sect. 6. At a special meeting, after the minutes of the preceding meeting have been read, the meeting shall immediately proceed to the consideration of the business for which it was specially convened, and no other business shall be brought before the College at such special meeting.

Sect. 7. The Chair shall decide upon questions of order: from which decisions, however, an appeal to the meeting may be had, if required by by two members, and the meeting shall thereupon decide without debate.

Sect. 8. No motion shall be received unless seconded, nor until the mover, if required by the President, Chairman, or a member, shall have committed it to writing.

Sect. 9. Every member, when speaking, shall address the Chair; and when a question is before the meeting, no motion shall be received, unless to amend, divide, commit, or postpone, or to adjourn; and a motion to adjourn shall always be decided without debate.

Sect. 10. On the call of any member the yeas and nays shall be ordered; when the question is decided by yeas and nays, each member present shall vote, and the names and manner of voting shall be entered upon the minutes.

LAW VIII.—*Of the Pharmaceutical Meetings.*

Sect. 1. The Pharmaceutical meetings of the College, which shall be exclusively for scientific purposes, shall be held on the first Monday in every month, from October to March, both inclusive, or at such time as said meetings may determine.

Sect. 2. Five members shall constitute a quorum.

Sect. 3. As soon after the hour appointed as five members shall appear, the President, or, in his absence, one of the Vice Presidents, or, in his absence, a Chairman pro tempore, shall take the chair and call the members to order.

Sect. 4. A Register shall be elected annually, at the meeting in October, to issue the notices, prepare business, and record the proceedings of the Pharmaceutical meetings, and to make selections therefrom for publication in the Journal.

Sect. 5. The order of proceedings at these meetings shall be as follows:

1. Minutes of the preceding meeting read, corrected, if necessary, and adopted.

2. Strangers introduced.
3. Donations to library or cabinet received.
4. Reports of Committees.
5. Written communications.
6. Verbal communications, miscellaneous business, and conversation.

Sect. 6. Members may introduce to these meetings graduates and students of the College and other persons having an interest in science generally, who, when introduced, shall be entitled to participate in the scientific discussions.

LAW IX.—*Of the Journal.*

Sect. 1. A Journal of such transactions of the College as may be ordered for publication, of original essays and of selections from scientific books, shall be published bi-monthly.

Sect. 2. The Journal shall be entitled "The American Journal of Pharmacy;" each number shall contain at least ninety-six pages, and six numbers shall form a volume.

Sect. 3. A standing committee of five members shall be elected annually, at the stated meeting in March, who shall be called the Publication Committee. They shall have power to appoint an Editor, affix his salary; and shall have charge of printing and publishing the Journal.

Sect. 4. All original communications, read at the Pharmaceutical meetings, for the Journal, shall be referred to this Committee, who shall examine and publish them at their discretion.

Sect. 5. The Publication Committee shall affix the price, subject to the approval of the College, and collect the subscription money for the Journal; they shall keep a correct account of their receipts and expenditures, and of the profits of publication; and shall make an annual report thereof, at the stated meeting in March.

Sect. 6. The College is not responsible for the opinions and investigations contained in the communications published in the Journal.

LAW X.—*Of Deceased Members.*

There shall be a Committee of three appointed at the stated meeting in September, whose duty it shall be to report annually the deaths of members of the College, with such biographical notices as may be appropriate.

LAW XI.

No amendment or alteration of these Rules shall be made unless proposed to the College by two members at one stated meeting, considered at the next, and adopted by two-thirds of the members present.

Editorial Department.

Reorganization of the Maryland College of Pharmacy.—From the *Baltimore American* of Feb. 29th we learn that "The Board of Trustees of the Maryland College of Pharmacy held a meeting on Monday the 25th of April, and effected its re-organization on the basis of the charter granted by act of the Legislature, Jan. 27th, 1841; at the same meeting a number of new members were elected. At a meeting of the College held on Wednesday evening, (27th Feb.,) the following gentlemen handed in their resignations as members of the Board, which were accepted, viz: George W. Andrews, Israel J. Grahame, J. V. D. Stewart, and John W. Barry. An election for officers was then held, which resulted as follows:—*President*—George W. Andrews. *Vice Presidents*—Israel J. Grahame and John W. Barry. *Secretary*—William S. Thompson. *Treasurer*—J. B. Baxley. *Board of Examiners*—Alpheus P. Sharp, J. Faris Moore, and Joseph Roberts. The Officers of the College compose the Board of Trustees ex officio.

A correspondent informs us that the meetings since the re-organization have been very spirited, and indicate that the movement among our Baltimore brethren is destined to be productive of good results. At the last meeting the subject of a certificate of membership was brought forward, and claimed much attention, and a Code of Ethics was, after full discussion, also adopted. We have not yet received the printed laws and proceedings, but will again recur to this subject. We understand that our Baltimore friends are pleased with the adoption of Baltimore as the next place of meeting of the Association, and we believe that their usual warm feeling will manifest itself on that occasion in promoting the objects of the meeting.

The Apothecaries' Association of the District of Columbia.—The work of pharmaceutical organization among the larger communities of the United States is slowly but surely progressing. Among the recent movements, none has been more successful than that at Washington, as will be manifest from the following communication:

Washington, (D. C.,) 9th April, 1856.

Sir,—At the first annual meeting of the "Apothecaries Association of the District of Columbia," held on the 2d inst., on motion of the President, the Corresponding Secretary was instructed to notify you of our organization under the above named title, and in compliance therewith, I have the honor to address you. Aware that the Apothecaries of Richmond, Va. and Baltimore, Md.,* had recently failed in an effort to organize for similar pur-

* This does not refer to the recent successful re-organization of the Maryland College, noticed above. Editor.

poses, and having made an abortive attempt some years ago ourselves many were naturally dubious at the onset, of harmony and ultimate success. It gives me pleasure, however, that more unity of action and evident desire for the progress of science, and for the increased utility and respectability of its members, could not be manifested than in the meetings of the Association, from its first, on the 22d February, responsive to a call through the public journals, convened at the Washington Infirmary and representing twenty-one establishments, up to the last, on the 2d inst., when with twenty-eight active and seven honorary members, we became fully organized by the adoption of a Constitution, a Code of Ethics, and by the election of officers. At the latter meeting a Committee was appointed to draft a charter to be presented for the action of the Association at a special meeting on the 16th inst., and then to Congress. A bill has also been prepared and adopted for the action of the City Councils with features intended to be protective in the interim, this bill for municipal action would have been unnecessary, but that there is at present a bill before our Councils, "To regulate the sale of Poisons, &c.," containing clauses objectionable to the Apothecaries, and thus the presentation of a substitute was deemed necessary. To favorable action in both these cases we look forward with hope, and confident of your sympathies in all our acts, I have the honor to be respectfully

F. S. WALSH, Corresponding Secretary.

Wm. Procter, Jr., Esq., Ed. Am. Journal of Pharmacy.

In answering this letter, we requested further information regarding the intentions of the "Association," and were informed, that whilst at present their principal aim has reference to the increase of professional competency of the members, the ultimate design is to include within the scope of the Association a School of Pharmacy. The following preamble to the Constitution is extracted from a pamphlet forwarded by Mr. Walsh, embodying that document, the code of ethics and a list of the members.

"Whereas, the time has arrived when an obvious necessity exists for a more perfect union and amity between the Apothecaries of the District of Columbia; and, whereas, a mutual protection of our interests and the elevation of the professional standing of the Pharmaceutist demand these, we therefore, the Apothecaries and Druggists of this District here assembled, (deeming it a necessary step to accomplish these objects,) do hereby join, in one bond of union, and constitute ourselves into a permanent Association to meet at such time and place as may hereafter be determined on; and to adopt for our government the following Constitution and Code of Ethics, for the observance and maintenance of which, we pledge ourselves one to the other."

In glancing over the pamphlet we observe that the officers of the College are VALENTINE HARBAUGH, *President;* John L. Kidwell, 1*st Vice President;* Joseph W. Nairn, 2*d Vice President;* William H. Gilman, *Recording Secretary;* Francis S. Walsh, *Corresponding Secretary;* Charles Stott, *Treasurer;* and an *Executive Committee* consisting of Joseph Walsh, Joseph B. Moore, Dunbar S. Tyson, John W. Nairn, and Daniel B. Clarke.

The following is the 1st section of article 3d of the Constitution, viz.

"Every apothecary and druggist of good moral and professional standing, and who shall have been actively engaged for the term of four years, either as principal or clerk, who, after duly considering the objects of this Asso-

ciation, the obligations of its Constitution and Code of Ethics, is willing to subscribe to them, is eligible to membership."

There are four stated meetings of the Association; on the 1st Wednesday of April, July, October and January of each year; the April meeting being considered the annual meeting. Provision is made at these meetings for the reading of scientific essays or other papers on professional subjects, after the other business of the meetings is transacted.

The Code of Ethics adopted by the "Association" is an excellent document, and is clear and explicit in reference to quackery, the Pharmacopœia, the mutual relations of apothecaries, and of these with physicians, and in relation to poisons.

In conclusion, we congratulate our friends of the District, on the successful inauguration of the Association, and wish them a bright future.

Prizes of the Pharmaceutical Society.—The Council of the Pharmaceutical Society of Great Britain have recently adopted the plan of offering annual prizes as an encouragement to the pharmaceutists of that country to cultivate the scientific department of their business. The prize is in each instance a silver medal, two grades of which are used: The "Council Medal," and the "Pereira Medal." The first prize offered is for the best essay "On the preparation of Cerates, Ointment and Plasters." The points particularly sought to be investigated are pointed out. The competitors must be members or associates of the Pharmaceutical Society, and the essays, with appropriate mottos on the outside of their envelopes, must be presented by 1st of August, 1857.

The Pereira medal is offered for the best essay "On the development and structure of the starch granule, and the means of distinguishing the more important commercial starches." The competitors must also be members or associates of the Society. A silver Council medal is offered for the best herbarium, collected between the 1st day of May, 1856, and the 1st day of August, 1857, and arranged according to the natural system.

This plan of offering prizes as an encouragement to talent and ambition among pharmaceutists, has long been practised by the Society of Pharmacy of Paris—who, however, offer the prizes in money. In the British prizes the stimulus will be the honor attached to the attainment of the prize, and we doubt not it will be responded to with spirit.

Ipecacuanha Plants.—Prof. Joseph Carson, of the University of Pennsylvania, has received a box containing several living plants of Cephaëlis Ipecacuanha, sent from Brazil by a correspondent in Rio. We have seen these plants in the greenhouse of Prof. Wood, and find that three of them are healthy, and likely to thrive. So far as we are aware, these are the first living specimens of the Cephaëlis that have reached this country.

NOTICE TO THE MEMBERS OF THE PHILADELPHIA COLLEGE OF PHARMACY.—By a recently adopted law of the College, every member who has *paid his annual contribution,* is entitled to receive this Journal *free of charge.* Those members who have complied with this requisition, and have not received the Journal, will have it sent to them on exhibiting the Treasurer's receipt at the office of publication, 56 Chestnut Street. Life members are equally entitled to the Journal.

A chart of Incompatibles and Poisons; embracing the chemical theory of the former; and the antidotes, tests, &c., appropriate to the latter. By J. W. HOYT, A.M. M.D.

This chart, neatly printed on thick paper, 25 × 30 inches is intended to present a bird's-eye view of the subjects indicated in the title, applicable to the physician and apothecary for reference on emergency. It will be found useful on many occasions when hints are needed and time is too scarce to look into regular treatises. It is published by E. O. S. Hoyt of Cincinnati.

Materia Medica, or Pharmacology and Therapeutics. By WILLIAM TULLY, M.D., Vol. 1, No. 14. December, 1853.

Dr. Tully is again at work, and after considerable delay the present number, due in 1853, is dated 1855. It is occupied with the narcotics as a class—vegetable and chemical, and offers some views of pharmacodynamics as singular as they are original. We are glad to find Dr. Tully is proceeding with this work. He is an original thinker, but is too much hedged in by peculiar and eccentric ideas, and embodies his views in language so mystified by his ultra technical nomenclature, that their force is lost in the difficulty of attributing the correct meaning as you follow him.

Transactions of the State Medical Society [of New York,] *transmitted to the Legislature, Feb. 8th,* 1856. Albany, pp. 254.

The above work has been received. The first sixty-three pages are taken up with an eulogium upon the life and character of Dr. Theodoric Romeyn Beck, by Frank H. Hamilton, M. D., President of the Society. The other articles are reports on medical subjects, and the proceedings of the Society. Dr. Beck was born on the 11th of August, 1791, and died on the 19th of March, 1855, aged sixty-four years and a quarter. Dr. Beck was well known as the author of "Beck's Medical Jurisprudence," and at the time of his death was a member of many learned societies, both at home and in Europe, where few Americans have been better known.